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March 9, 1953 Vol. 134, No. 10

Week at a Glance

Week-Day Suburban Train Service on the New York Central's electrified Harlem division will be expanded and placed almost entirely on a half-hour departure in off-peak hours, starting March 16. 11

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RAILWAY AGE FORUM

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Officer Retirement Plans are still short of perfection—development of a successful retirement policy involves more than just financial considerations. 86

AMERICAN RAILWAY ENGINEERING ASSOCIATION

What's Scheduled for "Engineering Week" at Chicago, when the A.R.E.A. holds its annual convention next week, is listed in the convention program. 88

Railroads Have Some Big Plans for fixed property

Current Statistics

Operating revenues, twelve months	
1952	$10,581,418,145
1951	10,391,883,739
Operating expenses, twelve months	
1952	$ 8,053,003,585
1951	8,043,948,634
Taxes, twelve months	
1952	$ 1,261,741,356
1951	1,203,399,838
Net railway operating income, twelve months	
1952	$ 1,078,454,945
1951	941,124,293
Net income, estimated, twelve months	
1952	$ 826,874,000
1951	690,568,000
Average price railroad stocks	
March 3, 1953	68.70
March 4, 1952	57.02
Car loadings, revenue freight	
Eight weeks, 1953	5,414,100
Eight weeks, 1952	5,716,965
Average daily freight car surplus	
February 28, 1953	69,648
March 1, 1952	8,322
Average daily freight car shortage	
February 28, 1953	1,170
March 1, 1952	3,158
Freight cars delivered	
January 1953	7,981
January 1952	8,642
Freight cars on order	
February 1, 1953	77,414
February 1, 1952	120,251
Freight cars held for repairs	
February 1, 1953	94,145
February 1, 1952	91,689
Average number of railroad employees	
Mid-January 1953	1,196,167
Mid-January 1952	1,223,143

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Departments

Week at a Glance CONTINUED

improvement in 1953. A *Railway Age* survey shows that they expect to spend during the current year some $525,000,000 for improvements, $1,844,000,000 for maintenance, and $22,400,000 for purchase of an estimated 8,300 pieces of mechanized maintenance equipment. 89

Why The Nation Needs More Technically Trained Men—and what the railroads must do, collectively, if they are to get their share of those technically trained men, is outlined by C. G. Grove, chief engineer, Western region, of the Pennsylvania. 92

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What's New in Engineering and Maintenance! Brief descriptions, mostly illustrated, of 38 new and improved products of special interest to railway engineering officers. 99

"Head End" Delays—and what can be done to eliminate or reduce them through use of fork trucks and collapsible containers for handling storage mail and express on passenger trains— have recently been the subject of extensive and apparently successful tests on the Great Northern. 115

A Standardized All-Welded Covered Hopper Car, easy to load, unload and clean, and available in three standard sizes, has been developed by the Pullman-Standard Car Manufacturing Company. 119

Ten Ways to Train Diesel Maintainers, and an analysis of their respective qualities and suitability for various conditions, was the subject of a recent study made for the American Institute of Electrical Engineers. 122

How to Get Better Statistical Methods Faster is the

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2
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What's Happening CONTINUED

objective of the Railway Systems and Procedures Association, which hopes to pool the thinking of representatives of various departments of numerous railroads to achieve improved management tools and techniques.

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BRIEFS

Top Priority Should be Given to Tariff Simplification by managements of transportation agencies and industry, according to Commissioner Arpaia of the I.C.C. The commissioner gave this advice in a recent speech before the Transportation Association of Waterbury, Conn. At the same time he recognized that the Railroads' Tariff Research Group is among the carrier organizations which have simplification work under way. It's a "gigantic undertaking," Mr. Arpaia warned.

A New Surburban Passenger Terminal for Chicago—to be situated on the north bank of the Chicago river—is the subject of a recent study submitted to the Chicago & North Western by a Chicago civic group. Describing the development as "difficult but not impossible," J. E. Goodwin, C&NW operating vice-president, has indicated that the proposal would be examined from both operating and financial standpoints. The area in question now has no railroad commuter terminal.

A Contest For Control of the New York, New Haven & Hartford, which has recently been a subject of intense interest in the New York financial community, appears to have been settled by a compromise between the presently controlling Dumaine interests and a group of independent stockholders, reportedly headed by Patrick B. McGinnis, chairman of the board of the Central of Georgia. The compromise, which is subject to confirmation at the road's annual meeting on April 8, will increase the number of New Haven directors from 15 to 21. It is understood that at least three of the new directors, affiliated with the McGinnis group, will be from Canada.

"Awakening to the Fact that the great future of the airplane as an instrument of world commerce lies in the carriage of man's goods rather than merely man, Lockheed Aircraft Corporation has just completed an intensive study of domestic air freight. In 1955, they predict that domestic air freight will aggregate between 300 and 400 million ton-miles, and in 1960, will climb to one-and-one-half billion ton-miles." — *From an address to the New York Society of Security Analysts by Raymond A. Norden, president, Seaboard & Western Airlines, Inc.*

Higher commutation and other fares applicable in the Chicago suburban area have been approved by the Interstate Commerce Commission and the Illinois Commerce Commission for the Chicago & North Western and the Chicago North Shore & Milwaukee. The proceeding out of which the federal commission's decision came was I. & S. Docket No. 6017.

Scheduled Air Cargo Flights, three times weekly, between Montreal-Toronto and Vancouver, via The Pas, Man., and Edmonton, have reportedly been proposed by Canadian Pacific Airlines. Trans-Canada Air Lines, which now holds east-west cargo rights, is opposing the move; but C.P.A. is said to have argued that it could provide faster service by using special 30,000-lb. capacity cargo planes, instead of making its freight traffic a "minor adjunct" of passenger and mail business.

A New Passenger Station and Freighthouse have just been opened by the Pennsylvania at Alliance, Ohio, to replace facilities dating from 1866.

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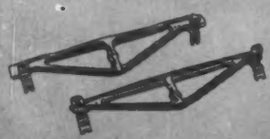

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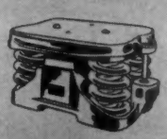
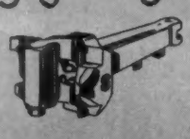


Ride-Control Packages

Simplex Snubbers



Tightlock Couplers

Type F Couplers

Type E Couplers

NYC Adds Commuter Trains

Puts off-hour New York-White Plains service on regular half-hourly basis in both directions

Week-day suburban train service on the New York Central's electrified Harlem division will be expanded and placed almost entirely on a half-hour departure schedule during off-peak hours, beginning March 16, Ernest C. Nickerson, vice-president, passenger traffic, has announced.

"The additional service and the new regularity of most train departures will minimize need for studying timetables," Mr. Nickerson said. "We are inaugurating these passenger conveniences under our policy of further improving service by operating as many full trains and as few empty trains as possible."

Addition of seven new trains during off-peak hours, plus revision of schedules of present runs, means that generally a New York-bound train will leave North White Plains at about 15 and 45 minutes past each hour, while a northbound train will leave Grand Central Terminal about 24 and 54 minutes past each hour. Times of stops at intermediate stations will be similarly regular and easy to remember.

Service now provided these stations by Harlem division trains operating to or from points beyond North White Plains will continue unchanged, supplementing the new "by-the-clock" service. Present frequent schedules of rush-hour trains will not be affected. In all, 59 trains will operate daily from North White Plains to Grand Central.

As an added convenience to suburban passengers, new timetables showing the changes will list week-day trains separately from Saturday and holiday trains and Sunday trains.

"Improved schedules," said Mr. Nickerson, "are another of the many steps the Central has taken to stimulate suburban travel during non-rush hours. Last January 1 we inaugurated the 'Manhattan Trip Ticket,' providing a 25-per-cent round-trip reduction on trains arriving in Grand Central at 10:30 a.m. or later. We hope the convenience of our new regular half-hourly service will be a further incentive for more people to use these trains."

In Congress

Retirement Board Says Go Slow

House committee told more experience under 1951 changes is needed before new amendments are made

The Railroad Retirement Board has advised the House Interstate and Foreign Commerce Committee that no changes in the retirement act should be considered until the board has had more experience with amendments passed in 1951.

William J. Kennedy, chairman of the board, told the committee he thought "the rest of this year" should be allowed for gaining experience under the 1951 amendments. He said the board also wants to wait until results are available from the fifth actuarial valuation of the retirement system's assets and liabilities. This valuation is now in progress, and will be completed later this month.

Mr. Kennedy and other members of the retirement board appeared before the House committee on February 27 and March 2.

Members of the committee expressed concern over the so-called "dual benefits provision" written into the act in 1951. This provision reflected the partial integration of railroad retirement with social security. In effect, it provided that if an employee's retirement annuity is based on some service prior to 1937, and if the employee also qualifies for social security benefits, his retirement annuity shall be reduced by the amount he receives from social security.

Technical operation of this clause has affected about 30,000 former railroad employees. It did, in fact, stay the general 15 per cent increase in retirement annuities which the 1951 amendments also authorized. As Mr. Kennedy put it, these employees "did not get the 15 per cent increase, but they lost nothing either."

Some 3,000 retired railroad employees are still employed in jobs covered by social security. While so employed they draw no social security benefits. Their retirement annuities were cut anyway, and the result has been "a deluge of letters" to Congress.

What, if anything, to do about this "dual benefit" crisis should be decided only after results of the pending actuarial valuation have been studied, Mr. Kennedy said. He estimated it would cost about $385,000,000 over the next 30 years to give the 15 per cent increase to the 30,000 retired employees affected.

Questions by some committee members were mildly critical of Mr. Kennedy. Representative Thornberry, Democrat of Texas, was "amazed" at Mr. Kennedy's dismissal of the 30,000 as a relative minority. Chairman Wolverton, Republican of New Jersey and Chairman of the committee, was "not in accord" with a statement by Mr. Kennedy that he was "an administrator and not a technician." Representative Hale, Republican of Maine, was "astonished" at the board's position with respect to legislative recommendations.

Representatives Beamer, Republican of Indiana, and Younger, Republican of California, questioned Mr. Kennedy about his maintaining a residence at Cleveland, Ohio, while the board's headquarters is at Chicago. Mr. Kennedy assured the group that he pays his own "hotel bills" while in Chicago, as well as his transportation for personal trips to and from Cleveland.

Bills in Congress

Chairman Wiley of the Senate Committee on Foreign Relations has appointed a subcommittee to consider legislation to authorize the federal government's participation with Canada in construction of the proposed St. Lawrence seaway.

Mr. Wiley named himself as one member of the subcommittee, which, he said, "will hold hearings in the near future and will expedite consideration of the seaway as much as possible".

New seaway proposals are among the recently introduced measures of interest to the railroads, which are listed below together with their sponsors.

Introduced in Senate

S.978, to require the Interstate Commerce Commission to consider, in stock modification plans, the assents of controlled or controlling stockholders (Johnson, Colo., for himself and Capehart, Ind.).

S.1065, to create the St. Lawrence Seaway Development Corporation to cooperate with Canada in the construction, operation

and control of the St. Lawrence seaway (Humphrey, Minn.).

S.1066, to authorize works "for the improvement of navigation" in the Great Lakes system above Lake Erie (Humphrey, Minn.)

S.J. Res. 45, to provide for development of the Great Lakes-St. Lawrence basin (Lehman, N. Y., for himself and nine other senators).

Introduced in House

H.R.3203, to amend the Interstate Commerce Act to prohibit the Interstate Commerce Commission from regulating the duration of leases for the use of equipment by motor carriers, and the amount of compensation to be paid for such use (Wolverton, N. J., by request).

H.R.3287, to require the Interstate Commerce Commission to consider, in stock modification plans, the assents of controlled or controlling stockholders (Aspinall, Colo.).

H.R.3289, to authorize the Interstate Commerce Commission to revoke, or amend, water carrier certificates and permits (Aspinall, Colo.).

H.R.3288, to preclude filing by the government of complaints assailing, as unreasonable, rates granted by carriers to government agencies pursuant to the Interstate Commerce Act's section 22 (Aspinall, Colo.).

H.R.3290, to remove rates of household-goods truckers from the scope of section 22 which authorizes carriers to accord special non-tariff rates to government agencies (Aspinall, Colo.).

H.R.3297, to provide for separation of subsidy from air mail pay (Garmatz, Md.).

H.R.3319, to create a St. Lawrence Seaway Development Corporation to consummate arrangements with Canada for construction and operation of the St. Lawrence seaway (Zarblocki, Wis.).

H.R.3424, to repeal the tax on the transportation of persons (McMillan, S.C.).

H.R.3528 and H.R.3529, to increase the amount authorized to be appropriated by the Federal Aid Highway Act of 1952 for construction and improvement of the "national system of interstate highways" (Dondero and Oakman, Mich.).

H.R.3642 and H.R.3643, to amend the Railroad Retirement Act (Price, Ill.).

H.J. Res. 195, to provide for development of the Great Lakes-St. Lawrence basin (Roosevelt, N. Y.).

Education

N. Y. R R Club Awards Prizes

Fourth Roy V. Wright essay contest winners announced at dinner meeting; first prize goes to Melvin W. Morris

First prize of $500 in the fourth Roy V. Wright Memorial Essay Contest, sponsored by the New York Railroad Club, has been awarded to Melvin W. Morris, chief rate clerk for the Southern at Richmond, Va. Mr. Morris's essay was entitled "Progressive Railroading."

Winners in the contest, which is named for the late managing editor of *Railway Age*, were announced at a February 26 dinner meeting of the club in the Hotel Commodore. Guest speaker at the meeting was Edward Lull Cochrane, retired naval vice-admiral and present dean of engineering, Massachusetts Institute of Technology.

Additional essay prizes of $100 each were awarded to: G. Lloyd Wilson, professor of transportation and public utilities, University of Pennsylvania (for an essay on "Principles of National Transportation Policy"); Stanley Hoffman traffic department, Mergenthaler Linotype Company, Brooklyn, N. Y. ("Less-Than-Carload Freight"); M. Clifford Gannett, diesel locomotive inspector, New York Central, Bellefontaine, Ohio ("Railroads' Need for Methods Engineers"); C. A. Church, sales engineer, General Electric Company, Erie, Pa. ("Railroads' New Horizon"); Thomas Parker, Jr., assistant director of personnel, Central of Georgia ("Supervisory Training—The Key to Teamwork"); Carl V. Lyon, car service agent, Association of American Railroads, Arlington, Va. ("Maximum Utilization of Freight Cars—A Goal for Railroads and the Shipping Public"); James A. Paddock, Order of Railway Conductors, Cedar Rapids, Iowa ("Technological Advancements versus Labor Relations"); Frank H. Mossman, associate professor, Michigan State College, East Lansing, Mich. ("The Traffic Manager and National Transportation Policy"); Richard F. Borsos, special apprentice, NYC, Beech Grove, Ind. ("The Human Factor"); and J. A. Cook, safety agent, Pennsylvania, New Brunswick, N.J. ("Synopsis").

Judges for the fourth contest were Perry M. Shoemaker, president of the Delaware, Lackawanna & Western, and Joseph A. Fisher, president of the Reading.

AN INTERCOMMUNICATION TELEPHONE, newly installed, enables this rotary snowplow operator—Ed Fontana, of the Southern Pacific—to talk at any time with the crew of the locomotive powering his plow, to describe conditions ahead and advise as to proper speeds.

B&O Offers New Training Course to Young Employees

A new non-technical training program for young employees has been announced by President R. B. White of the Baltimore & Ohio. Objective of the program is to provide young men, already employed by the railroad, an opportunity to study functions and operations of various departments, to prepare them for greater responsibilities. For the first course, beginning next April 1, eight employees under 35 will be selected, six from the operating department and one each from accounting and traffic departments.

During the 26-week course, trainees will gain experience in the following departments: Accounting and freight claims, communications, engineering, finance, insurance, law, maintenance of way, motive power, office methods and procedures, operation and transportation, personnel, public relations, purchasing and stores, relief, signal, traffic and treasury.

The training program will be continued on an annual basis, with a new group of trainees each year. In future years the number of trainees probably will be increased. The course will complement a technical graduate training program for engineering college students, which has been in effect on the B&O for the past three years.

Perishables Short Course At Purdue March 16-20

The seventh annual short course on transportation losses of perishables will be held at Purdue University, West Lafayette, Ind., March 16-20.

Speakers include men from both railroad and perishable industries. The course has been set up through cooperation of the Freight Loss and Damage Prevention Section of the Association of American Railroads, the American Railway Development Association, and the university. No tuition will be charged and arrangements similar to those in the past have been made to house and feed all those taking the course.

Labor & Wages

CGW Negotiations Move to Washington

Negotiations between the Switchmen's Union of North America, the Railroad Yardmasters of America and the strikebound Chicago Great Western are being transferred to Washington, D. C., according to an announcement by Federal Mediator Frank Switzer shortly before press time for this issue.

A CGW spokesman confirmed that management representatives were already on their way to Washington, although he did not have word as to the exact date on which negotiations would be resumed. He said meetings had continued through March 3 in Chicago and that many of the grievances which occasioned the tieup have been settled. "In fact," he said, "there are not too many of them left."

CGW operations have been completely tied up since January 25, when the Brotherhood of Railroad Trainmen, the Brotherhood of Locomotive Firemen & Enginemen, the Brotherhood of Locomotive Engineers and the Order of Railway Conductors—in addition to the two unions previously mentioned—called a walkout of their combined membership in an effort to force settlement of more than 600 grievances (principally working conditions, rules interpretations, etc.). The four operating groups subsequently settled their grievances either by negotiation, or by adjudication under a set of 15 basic principals agreed to by both sides.

Traffic

Roads Join Fight On Oil Imports

Eastern and Pocahontas lines cooperating with coal and domestic oil industries and railroad labor organizations

Pocahontas and Eastern railroads have agreed to participate in and support a newly planned fight against the importation of foreign residual fuel oil.

At a meeting in Washington, D.C., last week, representatives of the railroads joined with leaders of the coal and domestic oil industries to map a campaign designed to secure "prompt remedial action by the Congress."

Fred K. Prosser, general coal traffic manager, Norfolk & Western, spoke for the railroads at a press conference following the all-day session. He said the carriers "intended to give this program full support."

Railroad labor will also participate in the campaign. W. D. Johnson, vice-president, Order of Railway Conductors, said the brotherhoods will "actively cooperate in an effort to bring about the enactment of legislation to restrict the importation of residual fuel oil."

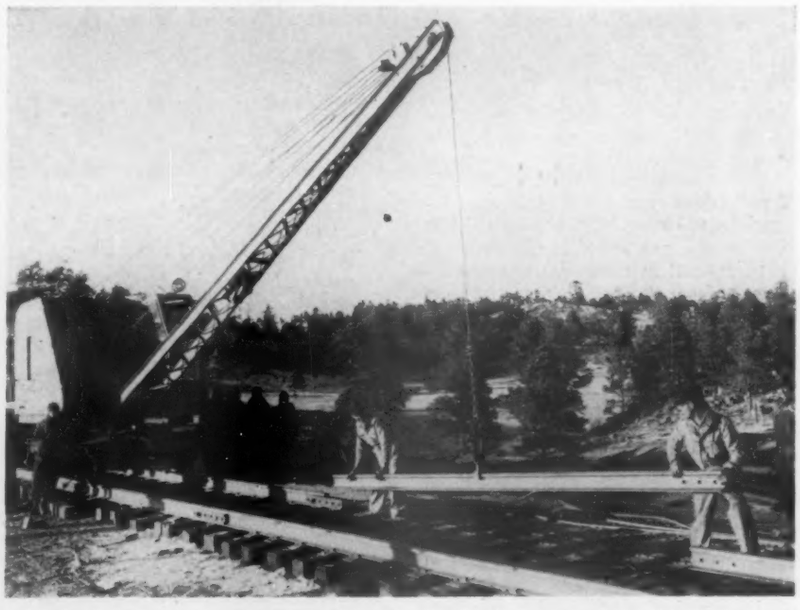
According to spokesmen for the coal industry, residual fuel oil, selling from $1.75 to $1.90 a barrel, is being "dumped" along the Eastern seaboard, principally from Venezuela. Imports of this foreign oil are averaging about 465,000 barrels a day, they said, an increase of about 25 per cent from last year.

Some 22 bills have been introduced in Congress to restrict these imports.

Committee Formed

At last week's meeting a new permanent organization, the Foreign Oil Policy Committee, was formed. F. S. Baird, vice-president, Norfolk & Western, and Martin J. Alger, vice-president, New York Central, were named to the executive committee of this group. Mr. Johnson of the Conductors and Jonas A. McBride, vice-president, Brotherhood of Locomotive Firemen & Enginemen, are also members.

A policy statement adopted at the meeting said the "rising tide" of residual fuel oil imports "poses a critical threat to the basic industries of this nation and those employed therein." This "excessive importation" requires



THE LAST RAIL, linking ends of the Union Pacific's 42-mile $16-million line change in southeastern Wyoming, goes into place six months ahead of schedule. The project will enable westbound UP trains to go around the south side of Sherman hill, thus avoiding a grade as heavy as 1.55 per cent. Full-fledged service over the new line, however, awaits completion of centralized traffic control this spring.

Racing against time in self-imposed competition, a steel gang of 115 Navajos worked in gusty winds that reached 55 m.p.h. Rail was laid from both ends of the project at the rate of 5,500 feet a day. The above length went into place at a point 35¼ miles from the project's east end. UP spokesmen term the line change the biggest the road has completed since the famed "golden spike" was driven.

immediate action by the Congress, the statement said.

According to an estimate by Thomas Kennedy, vice-president, United Mine Workers, the imported oil is displacing about three million tons of coal a year.

The program to restrict oil imports applies only to residual fuel oil and does not include crude oil. The restrictions sought by the new group would curtail imports to less than 25 per cent of the present rate.

N & W Improvements Outlined

Traffic sales and service representatives hear about betterment expenditures, increased merchandise traffic

The Norfolk & Western since 1945 has spent and authorized more than $200,000,000 for improvements, S. S. Hosp, N&W freight traffic manager, told members of the road's freight traffic department's sales and service staff during a two-day meeting in Norfolk, Va. Mr. Hosp pointed out that the N&W, since World War II, has spent approximately $10,000,000 on its facilities in the Norfolk area.

The meeting, called an educational and training program, was attended by about 60 of the N&W's representatives from 29 off-line and 10 on-line points. During the two-day program the traffic salesmen inspected the road's merchandise pier facilities, including the $6,000,000 Pier N and newly opened oil handling facilities at Lamberts Point; grain elevators, piers and warehouses at Sewalls Point, and other facilities.

Progress Cited

Recalling that the last traffic department reunion had been held in 1930, when there was no separate sales and service department, Mr. Hosp cited some of the department's progress, including establishment of new freight sales and service offices at Durham, N.C., Portsmouth and Washington, D.C. "Our carload merchandise freight increased, 1951 over 1930, almost 131,000 cars, or 36 per cent," he continued, "but the total merchandise tonnage increased from 9,500,000 tons to over 17,000,000 tons, an increase of over 7,500,000 tons, or approximately 79 per cent . . . In 1930 our merchandise revenue was more than $34,500,000. In 1951 that revenue was over $65,000,000."

L. E. Ward, industrial and agricultural manager, told one session that "at least 60 per cent of our good prospects are referred to us by the sales and service department." Specific examples were given of establishment of industries on the N&W on the basis of information supplied by members of the sales and service staff.

N&W facilities at Lamberts Point "will be further rounded out when we have an operation there for packaging export articles requiring such service," W. C. Sawyer, general foreign freight agent, told the group. Mr. Sawyer said he was hopeful that the time is not too far distant "when it will be possible to announce publicly inauguration of an export packaging operation."

A dinner at which Mr. Sawyer was toastmaster closed the two-day program. F. S. Baird, vice-president in charge of traffic, addressed the dinner session. Mr. Baird outlined the vital interest of the N&W in the port of Norfolk and the constant efforts on the part of the railroad, port agencies and shippers to encourage fullest possible development of the port.

Postmaster General May Revise Parcel Rate Proposal

Postmaster General Summerfield may revise the proposal to increase parcel post rates which is now pending before the Interstate Commerce Commission.

Acting in response to Mr. Summerfield's request, the commission postponed hearings on the proposal which had been scheduled to get underway last week.

The proposal was filed by former Postmaster General Donaldson. It would raise parcel post rates to the point where they would yield from 33 to 35 per cent more revenue. Mr. Donaldson had also announced that a 20-cent surcharge on oversized parcel post packages would become effective April 1.

This Donaldson surcharge directive was recently set aside by Mr. Summerfield who called upon his staff to reexamine the matter (*Railway Age*, March 2, page 5). It was to await results of this study, "which may require a revision of such schedules," that Mr. Summerfield obtained from the I.C.C. the postponement of hearings in the case pending there.

Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended February 28, which included the Washington's Birthday holiday, totaled 668,805 cars, the Association of American Railroads announced on March 5. This was a decrease of 20,748 cars, or 3 per cent, compared with the previous week; a decrease of 87,039 cars, or 11.5 per cent, compared with the corresponding week last year; and a decrease of 117,056 cars, or 14.9 per cent, compared with the equivalent 1951 week. Neither the 1952 nor 1951 weeks included the February 22 holiday.

Loadings of revenue freight for the week ended February 21 totaled 689,553 cars; the summary for that week, compiled by the Car Service Division, A.A.R., follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, February 21

District	1953	1952	1951
Eastern	126,230	123,072	134,575
Allegheny	146,325	141,197	150,924
Pocahontas	46,950	58,009	58,464
Southern	128,769	129,771	133,275
Northwestern	73,171	66,391	78,864
Central Western	111,536	110,966	119,448
Southwestern	56,572	54,145	59,295
Total Western Districts	241,279	231,502	257,607
Total All Roads	689,553	683,551	734,845
Commodities:			
Grain and grain products	37,965	43,276	48,278
Livestock	6,515	7,402	6,552
Coal	118,989	140,582	139,180
Coke	15,183	16,115	16,116
Forest Products	44,236	40,651	45,839
Ore	20,078	19,263	21,625
Merchandise l.c.l.	69,659	66,142	79,018
Miscellaneous	376,928	350,030	378,237
February 21	689,553	683,551	734,845
February 14	681,750	737,776	740,557
February 7	690,744	733,919	573,209
January 31	697,616	731,218	651,165
January 24	697,641	728,015	784,166
Cumulative total 8 weeks	5,414,100	5,716,965	5,709,134

In Canada.—Carloadings for the seven-day period ended February 21 totaled 70,649 cars, compared with 71,108 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
February 21, 1953	70,649	20,307
February 21, 1952	71,399	36,776
Cumulative Totals		
February 21, 1953	525,288	226,674
February 21, 1952	555,646	262,844

CAR SURPLUSES, SHORTAGES

Average daily freight car surpluses and shortages for the week ended February 28 were announced by the Association of American Railroads on March 5 as follows:

	Surplus	Shortage
Plain Box	7,504	433
Auto Box	124	60
Total Box	7,628	493
Gondola	6,153	87
Hopper	46,949	90
Covered Hopper	291	0
Stock	7,536	0
Flat	14	457
Refrigerator	777	0
Other	300	43
Total	69,648	1,170

Law & Regulation

"Old Series" Price Index Not Dead Yet

The Bureau of Labor Statistics will resume compilation of the "old series" Consumer's Price Index to which escalator-clause provisions in railroad wage agreements are tied. President Eisenhower directed that the series be continued for another six months to allow time for adjustment of wage contracts to the new index.

The latter was installed recently, and the bureau then discontinued compilation of the "old series." (*Railway Age* of December 29, 1952, page 48.)

I.C.C. Merges Two Sections of Finance Bureau

The Interstate Commerce Commission has consolidated the Securities Section and the Loans and Reorganizations Section of the Bureau of Finance, under the name of Securities and Reorganizations Section.

The position of chief of the Securities Section has been abolished. Examiner Grutzik, formerly assistant chief of the Securities Section, has been appointed assistant chief of the Securities and Reorganizations Section.

People in the News

A.A.R. Would Keep Squire On Retirement Board

The Association of American Railroads will recommend to President Eisenhower the reappointment of Frank C. Squire as a member of the Railroad Retirement Board.

Mr. Squire's present term expires next August 29, so the reappointment would be for a new five-year term expiring August 29, 1958. He has been railroad management's representative on the board since 1943.

Organizations

The 68th regular meeting of the **Allegheny Regional Advisory Board** will be held at the Hotel William Penn, Pittsburgh, March 26.

The **Traffic Club of St. Louis** will hold its next regular luncheon meeting March 16, in the Statler Hotel, St. Louis. Col. S. R. Browning, assistant chief of transportation—traffic, Washington, D.C., will be guest speaker, on "Coordination of Department of Defense Traffic During Emergencies." Also, at this meeting, the 341st Transportation Traffic Regulating Group, an active reserve unit of the army, sponsored by the club, will be especially honored. Lt. Col. John L. Boros, commanding officer of the group and chairman of the club's Military Affairs Committee, will preside.

J. R. MacAnally, general freight traffic manager of the Union Pacific, will address the dinner meeting of the

1—GETTING READY.

2—HALF WAY UP.

3—ON A FLAT CAR.

4—READY TO GO.

A NEW USE FOR BIG HOOKS

When the two-mile-long Louisiana Eastern recently faced the problem of moving an 80-ton gravel dredge to a new location about two miles away, the little road "drafted" an Illinois Central wrecking crane to do the job. The operation, handled in the sequence illustrated above, took about 7½ hours. IC Master Mechanic R. J. Chinn was in general charge, assisted by D. Smith, wrecking foreman. Pictures were furnished by Paulsen Spence, LE president.

Women's Traffic Club of New York at the Park Sheraton Hotel, March 10.

The **Ohio Valley Transportation Advisory Board** will hold its 105th regular meeting in the Deshler-Wallick Hotel, Columbus, Ohio, March 10-11. Andrew H. Brown, president of the National Industrial Traffic League and transportation commissioner of the Cleveland Chamber of Commerce, will speak at the luncheon session on March 11, which will be held jointly with the **Columbus Chamber of Commerce** and the **Columbus Transportation Club.**

The **National Safe Transit Committee** has announced details of its Safe Transit Conference to be held at the Palmer House, Chicago, March 16. Representatives of finished product manufacturers, carriers, container firms, etc., are invited to attend both morning and afternoon sessions. After an introductory film presentation, manufacturer and distributor representatives will participate in a roundtable discussion of "How Safe Transit Has Aided Our Company." This will be followed by views and suggestions from representatives of the railroad, trucking and air freight industries, plus the Railway Express Agency. The viewpoint of manufacturer and retailer, a look at "New Horizons," and a question and answer period complete the program schedule.

The **Transportation Club of Louisville** will observe "Railroad Night" March 10. Guest speaker will be Dr. Philip Davidson, president of the University of Louisville. The dinner meeting will be in the Kentucky Hotel.

Equipment & Supplies

Inquiries Up to 5,212 Cars

Twelve railroads and four car lines contemplating purchase of cars of eight different types

Domestic inquiries for, or authorizations to purchase, from 3,632 to 5,212 freight-train cars were known to *Railway Age* as this issue went to press, and are listed herewith.

Company	Quantity	Type
Armour & Co.	225 to 600	40-ton Refrigerator
AT&SF	50 to 100	95-ton Ore
CB&Q	100	70-ton Hopper
CI&L	50	70-ton Hopper
D&TSL	100 to 500	50-ton Box
GM&O	300	50-ton Ore
KCS	200	50-ton Flat
L&N	250 to 300	90-ton Ore
Mather Stock Car Co.	200 to 500	40-ton Refrigerator
Merchants Despatch	500	40-ton Refrigerator
MP	100	50-ton Pulpwood
N&W	1,000	70-ton Gondola
StL-SF	200	90-ton Ore
Southern	100 to 500	70-ton Hopper
	250	95-ton Ore
Warner Co.	5 to 10	70-ton Hopper
WM	2	90-ton Well

FREIGHT CARS

Tank Car Fleet Totaled 152,050 Cars at Year End

The fleet of privately owned railroad tank cars totaled 152,050 cars at the close of last year, according to the Defense Transport Administration's latest monthly survey.

There were 5,395 of these cars awaiting repairs on December 31, so the bad order percentage was 3.65. During December, 458 new tank cars were placed in service by the reporting companies. Tank cars scrapped during the month totaled 210.

The **Central of Georgia** has ordered 1,000 50-ton box cars from the Pullman-Standard Car Manufacturing Company at an estimated cost of $6,000,000. The cars, part of 3,000 to be purchased over a three-year period (*Railway Age*, February 9, page 18), are scheduled for delivery next fall.

The **Savannah & Atlanta** has ordered 200 40-ton freight cars from the Pullman-Standard Car Manufacturing Company at an estimated cost of $1,200,000. Authorization to purchase this equipment, part of a three-year program to purchase 600 cars, was reported in *Railway Age*, February 9, page 18.

PASSENGER CARS

The **Chicago Transit Authority** has entered an agreement with the St. Louis Car Company to convert 150 P.C.C.-type street cars into rapid transit cars for subway-elevated service. Conversion will involve use of entirely new car bodies, but will retain trucks, motors and controls, which are nearly identical to those of P.C.C.-type subway-elevated equipment currently being acquired by C.T.A.

The cost of the unusual rebuilding project has been set at $4,849,800. C.T.A. expects to realize a saving over the purchase price of new rapid transit cars of about $20,000 per car, and plans to use the savings toward purchase of additional transit buses for surface service. The agreement provides an option whereby C.T.A. may similarly convert 50 or 100 additional street cars at the same unit price of $32,332 per car.

SIGNALING

The **Chicago, St. Paul, Minneapolis & Omaha** has ordered equipment from the General Railway Signal Company for installation of four sets of intermittent inductive train control equipment on passenger diesels.

Supply Trade

The **Westinghouse Air Brake Company** has purchased control of the **Le Roi Company,** of Milwaukee. The latter company will continue to be operated as an independent concern, with no change in the organization for manufacturing and selling its products to the railroad industry. **George M. Hogan & Co.,** Chicago, will continue to serve as national representative in the railroad field for Le Roi.

J. F. Kidwell, service engineer of the **Electro-Motive Division** of **General Motors Corporation,** has been apointed district engineer at Denver.

James J. Law, Jr., R. E. Jaccard and **James Peterman** have been added to the sales and engineering staff of the **Bowers Battery & Spark Plug Co.** Mr. Law's territory will be central and eastern Pennsylvania, excluding Philadelphia; Mr. Jaccard's, Phila-

Merritt S. Stevenson, who has been appointed manager of transportation sales for the Baker-Raulang Company. He will direct the company's sales activities in the rail, air and highway transportation fields and will work with shippers in development of efficient freight and baggage handling techniques. Mr. Stevenson formerly was national railroad representative for the Clark Equipment Company.

James T. Chinland, mechanical inspector of the Chicago, Burlington & Quincy, who has joined the Vapor Heating Corporation, Chicago, as service representative.

delphia, southern New Jersey and south to Richmand, Va., and Mr. Peterman's, western Pennsylvania, eastern Ohio and West Virginia.

Ross W. Bennington has been appointed to the newly created position of general traffic manager for the **United States Rubber Company.**

A. C. Brown, Jr., formerly regional manager at Pittsburgh for the **Air Reduction Sales Company,** has been appointed general sales manager, with headquarters at 60 East 42nd street, New York. **J. H. Keeney,** formerly administrative assistant in Pittsburgh, succeeds Mr. Brown as regional manager; **J. H. Hart,** Detroit district manager, succeeds Mr. Keeney, and **R. A. Jamieson,** assistant sales manager, Detroit, succeeds Mr. Hart.

S. R. Watkins has been appointed executive vice-president of the National Bearing division of the **American Brake Shoe Company,** with headquarters at St. Louis. Mr. Watkins joined the company in 1939 as a member of the sales department of the Brake Shoe & Castings division. In 1941 he entered the U.S. Army, where he served as captain of field artillery. Mr. Watkins rejoined Brake Shoe's sales force in 1946 and, in 1949, was named district sales manager for the division. He was appointed assistant vice-president in 1951.

D. I. Packard, who has joined the Brandon Equipment Company, Chicago, as vice-president in charge of sales.

The **Kelbe Bros. Equipment Company,** 5686 North Teutonia avenue, Milwaukee, has been appointed distributor in Wisconsin for equipment manufactured by the **Koehring Company** and its three subsidiary companies: The **Parsons Company,** Newton, Iowa; the **C. S. Johnson Company,** Champaign, Ill., and the **Kwik-Mix Company,** Port Washington, Wis. **Allied Equipment, Inc.,** 825 N. W. 72nd street, Miami, Fla., has been appointed to handle Koehring products and also the Parsons Company account in 13 southern counties of Florida, and the **Standard Machinery Company,** 450 Bayshore boulevard, San Francisco, has been appointed to handle Koehring and Parsons products in northern California territory formerly covered by Koehring's west coast sales division.

G. A. Tamblyn, who has been appointed sales manager for the Frank G. Hough Company. Mr. Tamblyn joined the company in 1942 and was appointed assistant sales manager in 1948.

Securities

Southern.—*Would Split Preferred.*—Directors of the Southern have approved a two-for-one split of the five per cent preferred stock, through issuance of two $50-par shares for each outstanding $100-par share. The proposed split, like that proposed for the common stock (*Railway Age*, February 2, page 53), will be voted on by stockholders at the annual meeting next May.

Application

CHESAPEAKE & OHIO.—To assume liability for $7,950,000 of equipment trust certificates to finance in part acquisition of 51 diesel units and 272 freight cars, listed below, at an estimated total cost of $10,022,886.

	Description and Builder	Estimated Unit Cost
4	2,250-hp. passenger units (Electro-Motive Division, General Motors Corporation)	$235,381
14	1,500-hp. road-switchers (Electro-Motive)	166,036
12	1,500-hp. road-switchers (Electro-Motive)	176,359
3	1,500-hp. road-switchers (Electro-Motive)	168,273
2	1,600-hp. road-switchers (Baldwin-Lima-Hamilton Corporation)	185,498
2	1,000-hp. road-switchers (American Locomotive-General Electric Companies)	125,060
14	1,000-hp. road-switchers (Alco-G.E.)	104,609
272	50-ton box cars (General American Transportation Corporation)	7,509

The certificates, to be dated April 1, would mature in 30 semiannual installments of $265,000 each, begining October 1. They would be sold by competitive bids, with the interest rate to be set by such bids.

Authorizations

BALTIMORE & OHIO.—To assume liability for $3,000,000 of series FF equipment trust certificates, the second installment of a proposed $10,005,000 issue. The road is acquiring 60 diesel locomotives, 11 sleeping cars and three Budd cars costing an estimated $12,509,323 (*Railway Age*, November 17, 1952, page 18). The present issue of certificates will be applied toward purchase of 19 of the locomotives and the three Budd cars. Estimated cost of this portion of the equipment is $3,613,852. An earlier installment of these FF certificates, amounting to $5,505,000, was applied toward payment for 41 of the locomotives.

Division 4 approved sale of the second installment of FF certificates for 99.3773 with interest at 3⅛ per cent—the bid of Salomon Bros. & Hutzler and three associates—which will make the average annual cost of the proceeds to the road approximately 3.25 per cent. The certificates, dated December 1, 1952, will mature in 15 annual installments of $200,000 each, beginning December 1, 1953. They were reoffered to the public at prices yielding from 2.35 to 3.25 per cent.

INTERNATIONAL-GREAT NORTHERN.—To assume liability for $3,000,000 of series EE equipment trust certificates, to finance in part 500 box cars and five diesel locomotives costing an estimated $3,804,013 (*Railway Age*, February 2, page 53). Division 4's report approved sale of the certificates for 99.52 with interest at 3¼ per cent—the bid of Halsey, Stuart & Co. and five associates—which will make the average annual cost of the proceeds to the road approximately 3.35 per cent. The certificates, dated February 20, will mature in 15 annual installments, beginning February 20, 1954. The payments will be $300,000 each for the first five years, and $150,000 each for the remaining 10 years. They were reoffered to the public at prices yielding from 2.5 to 3.375 per cent, accordina to maturity.

PENNSYLVANIA.—To assume liability for $4,800,000 of series AA equipment trust certificates, to finance in part 14 diesel units and 750 box cars costing an estimated $6,443,500. The present certificates are the first installment of a proposed $9,030,000 issue which will be used to help finance new equipment costing approximately $12,040,000 (*Railway Age*, January 26, page 61). Division 4 approved sale of the first installment for 99.131 with interest at 3 per cent—the bid of Halsey, Stuart & Co. and nine associates—which will make the average annual cost of the proceeds approximately 3.16 per cent. These certificates, dated March 1, will mature in 15 annual installments of $320,000 each, beginning March 1, 1954. They were reoffered to the public at prices yielding from 2.35 to 3.15 per cent, according to maturity.

Dividends Declared

AKRON, CANTON & YOUNGSTOWN.—common, $2.50, payable April 1 to holders of record March 16; 5% preferred, $2.50, semiannual, payable April 1 and October 1 to holders of record March 16 and September 15.

BANGOR & AROOSTOOK.—5% preferred,

$1.25, quarterly, payable April 1 to holders of record March 9.

BEECH CREEK.—50¢, quarterly, payable April 1 to holders of record March 6.

CHICAGO, BURLINGTON & QUINCY.—(first quarterly payment since 1921) $1.50, payable March 23 to holders of record March 11.

DELAWARE & HUDSON.—$1, quarterly,(payable March 27 to holders of record March 11.

DELAWARE, LACKAWANNA & WESTERN.—increased, 50¢, payable April 1 to holders of record March 13.

EUROPEAN & NORTH AMERICAN.—$2.50, semiannual, payable April 3 to holders of record March 10.

GULF, MOBILE & OHIO.—common, 50¢, quarterly, payable March 31 and June 30 to holders of record March 11 and June 10; $5 preferred, $1.25, quarterly, payable September 14 and December 15 to holders of record August 25 and November 25.

ILLINOIS CENTRAL.—$1, quarterly, payable April 1 to holders of record March 4.

MINNEAPOLIS & ST. LOUIS.—25¢, payable March 14 to holders of record March 10.

NORTHERN PACIFIC.—75¢, payable April 24 to holders of record April 3.

READING.—4% 2nd preferred, 50¢ quarterly, payable April 9 to holders of record March 19.

UNION PACIFIC.—common, $1.25, quarterly; 4% preferred, $1, semiannual, both payable April 1 to holders of record March 9.

Security Price Averages

	Mar. 3	Prev. Week	Last Year
Average price of 20 representative railway stocks	68.70	68.68	57.02
Average price of 20 representative railway bonds	94.95	94.81*	92.68

* corrected

New Facilities

NH Plans New $250,000 Station

Strategically located facility, at junction with major highway, would serve local, long-distance passengers

A new passenger station, to be directly served by a 10,000-car parking lot, is contemplated by the New York, New Haven & Hartford for construction at the point where its main line from Boston to New York crosses Massachusetts State Highway 128 (*Railway Age*, March 2, page 7).

Located near Canton, Mass., approximately 15 miles south of Boston, the new $250,000 station would be a regular stop for all the railroad's Boston-New York trains, and for an undetermined number of commuter trains to and from Boston. Its location on Route 128—a newly improved major highway circling the entire Boston suburban area—would make it readily accessible by automobile to hundreds of thousands of residents of that area, who must now travel into Boston, or south to Providence, to board the railroad's through trains. Running time from the new station to New York is expected to be about 3½ hours, by the New Haven's fastest trains, compared with four hours from Boston by the same trains.

No estimate has been made as to the amount of traffic to be handled at the new station, but New Haven officers have predicted that it will be "very heavy," and that it "will attract substantial additional patronage to New Haven passenger service."

The railroad's new spring timetable, scheduled to become effective April 26, is expected to show the new station.

The structure itself, to be built on land already owned by the railroad, will consist of separate buildings on each side of the tracks, with an underground passageway between them. Platforms are expected to be of the high-level type, long enough to accommodate an 18-car train. The possibility of including restaurant and gasoline concessions is being considered.

The New Haven also plans, this year, to remove overhead catenary structures, and substitute diesel for electric power, between South Norwalk, Conn., and Danbury, 24 miles, its president, Frederic C. Dumaine, Jr., told the New York Society of Security Analysts on February 27. He said at the same time that the road was considering purchase of power for its electrified lines between New York and New Haven, to eliminate the cost of modernizing its own power plant at Cos Cob, Conn.

Radio on Entire 616 Miles Of Bangor & Aroostook

The Bangor & Aroostook has placed an order with the Federal Telephone & Radio Corp., an associate of International Telephone & Telegraph Corp., for an installation of radio in 15 locomotives and in wayside base stations at Houlton, Presque Isle, Caribou, Van Buren and Squa Pan, all in Maine, and on the railroad's Northern division.

The equipment incorporates unitized construction with separate transmitter, receiver, and power supply; a novel plug-in system which permits easy replacement of units by non-technical personnel, and the exclusive Federal-Farnsworth "firecracker" antenna. Previously this railroad has had Federal-Farnsworth radio in service in 14 locomotives, eight cabooses, and seven wayside base stations on its Southern division. Therefore, with completion of the 1953 project, radio will be in service on the entire 616 miles of B&A main line.

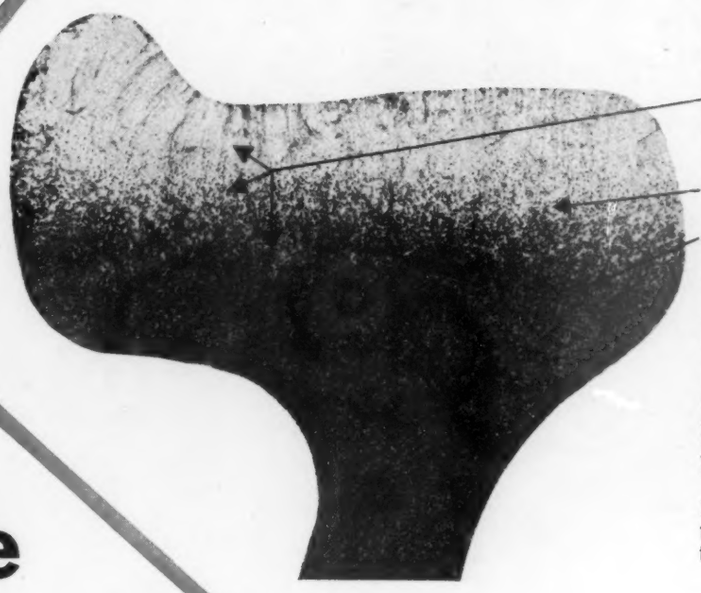
SP to Spend $7,000,000 For New Houston Yard

A new 5,620-car capacity receiving, classification and forwarding yard will be built by the Southern Pacific on the site of its present Englewood yard at Houston, Tex.

Estimated to cost $7,000,000, the new yard will cover 300 acres and its maximum width will be 76 tracks. Gravity operated, the yard will have retarder speed control and pushbutton automatic switching. The 48-track classification unit will hold 2,390 cars, enabling more than 4,000 freight cars to be handled within a 24-hour period. Other units include 11 tracks for train makeup and departure and 10 tracks for assembling local trains and terminal transfers. The latter will have a capacity of 650 cars. There also will be a 92-ft. track scale and a number of repair tracks.

Other equipment will include service buildings, towers for observation, control and lighting and a communications system developed around talkback speakers and shortwave walkie-talkie equipment. Grade crossings will be rerouted in the area to eliminate traffic hazards and bottlenecks. A pedestrian underpass will enable yard workers to reach their stations without crossing tracks where cars are being switched. Construction of the yard facilities will begin as soon as engineering and other plans are completed.

A BANGOR & AROOSTOOK engineman talking over Federal-Farnsworth's new radio communications system in one of the railroad's diesel switchers. The installation includes, left to right, transmitter, receiver, power supply and control unit.



a 10-year record of improved values

1941-1946 Improved Control of mottled iron formation, providing clearer chill at tread and more impact resistant gray iron backing.

1945 AMCCW plants adopt limitation on chill depth in rim.

1945 Rim thickness increased.

1947 More rigid inspection and standards for rotundity adopted for wheels shipped from AMCCW plants.

1950 New wheel design features heavier tread (stronger flange and rim) and more brackets (thicker, heavier, more continuous flange support).

1951 New wheel design advanced from "Recommended Practice" to "AAR standard."

the inside story of the chilled car wheel

This record of progress gives you the inside story of why AMCCW wheels are making better and better safety records...a ratio of 133 million car miles in 1951 without failure, and evidence of still better performance in 1952. (And the new AMCCW design with its 100% increase in rim strength and 20% increase in flange strength is just beginning to affect these figures!) The record shows why chilled car wheel performance has improved continuously over the years, and is a pretty good indication of why it will continue to improve in the years to come.

Quick, low-cost delivery of chilled car wheels from the AMCCW plant near you.

In good supply
Available locally
Short-haul delivery
Reduced inventory
Low first cost
Low exchange cost
Increased ton mileage
High safety standards
AMCCW plant inspection
Easier shop handling

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

445 North Sacramento Boulevard, Chicago 12, Ill.

Albany Car Wheel Co. • American Car & Foundry Co. • Griffin Wheel Co.
Marshall Car Wheel & Foundry Co. •
Pullman-Standard Car Mfg. Co. • Southern Wheel (American Brake Shoe Co.)

NOTHING COMPLICATED

here's how it works

1

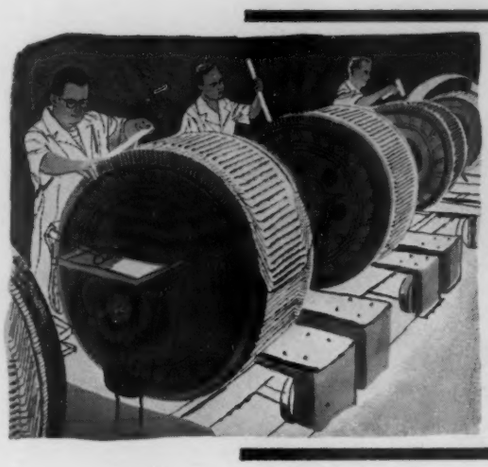
YOU ORDER REBUILDS of major Diesel locomotive components from your nearest Electro-Motive Branch. (Rebuilt traction motors available at nine convenient depots.) We ship you fully guaranteed factory-rebuilt assemblies from our "Unit Exchange" pool. In most cases, delivery can be made in your shop within 24 hours!

2

YOU RETURN WORN UNITS after you have received the rebuilds. No need for you to keep locomotives out of service waiting for assemblies to be rebuilt. With "Unit Exchange" we "carry the spares" for you—you save considerable investment in inventories of parts and assemblies.

ABOUT "UNIT EXCHANGE"

here's how you save



3

WE REBUILD YOUR WORN UNIT by production-line methods—automatically incorporating the latest design and parts improvements. Every unit we rebuild carries the same guarantee as a new assembly. No guesswork about its performance!

4

WE BILL YOU only for the labor and materials needed to put your worn unit into the same top-standard condition as the "Unit Exchange" assembly you received. Low, flat-rate prices itemized in our Factory Rebuild Catalog are the same on "Unit Exchange" as on units we rebuild and return. You get the same top-quality work—and pay no premium for "Unit Exchange."

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS

LA GRANGE, ILLINOIS, HOME OF THE DIESEL LOCOMOTIVE

In Canada: General Motors Diesel, Ltd., London, Ontario

GENERAL MOTORS LOCOMOTIVES

Streamlite HAIRINSUL
PROTECTS PERISHABLES...
...ON THE MAINLINES...ON SIDINGS...EVERYWHERE!

At any location . . . at any temperature Streamlite HAIRINSUL provides maximum protection to valuable shipments of perishables.

Major refrigerator car builders have been using all-hair insulation for nearly half a century—and today they specify Streamlite HAIRINSUL because of its 40% less weight, higher efficiency and greater economy.

Yes, Streamlite HAIRINSUL assures you all the major advantages listed at the right—and more besides. Write for complete data.

LOW CONDUCTIVITY. Thoroughly washed and sterilized, all-hair heat barrier. Rated conductivity—.25 btu per square foot, per hour, per degree F., per inch thick.

LIGHT WEIGHT. Advanced processing methods reduce weight of STREAMLITE HAIRINSUL by 40%.

PERMANENT. Does not disintegrate when wet, resists absorption. Will not shake down, is fire-resistant and odorless.

EASY TO INSTALL. Blankets may be applied to car wall in one piece, from sill to plate and from one side door to the other. Self-supporting in wall sections between fasteners.

COMPLETE RANGE. STREAMLITE HAIRINSUL is available ½" to 4" thick, up to 127" wide. Stitched on 5" or 10" centers between two layers of reinforced asphalt laminated paper. Other weights and facings are available.

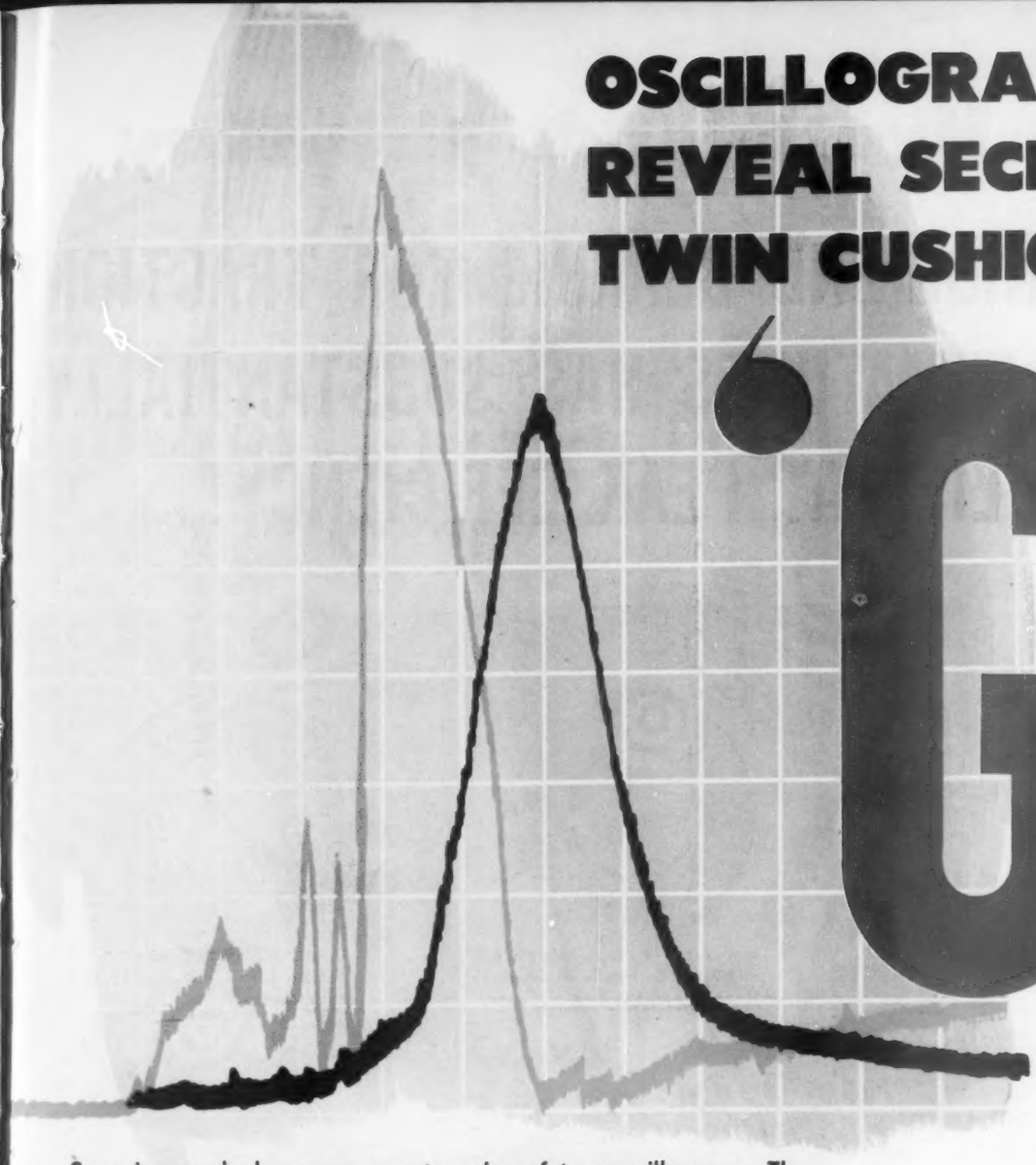
HIGH SALVAGE VALUE. The all-hair content does not deteriorate with age; therefore has high salvage value. No other type of insulation offers a comparable saving.

Sets The Standard By Which All Other Refrigerator Car Insulations Are Judged

Dept. H-33, Merchandise Mart, Chicago 54, Ill.

OSCILLOGRAMS REVEAL SECRET OF TWIN CUSHION . . .

'G'* CONTROL

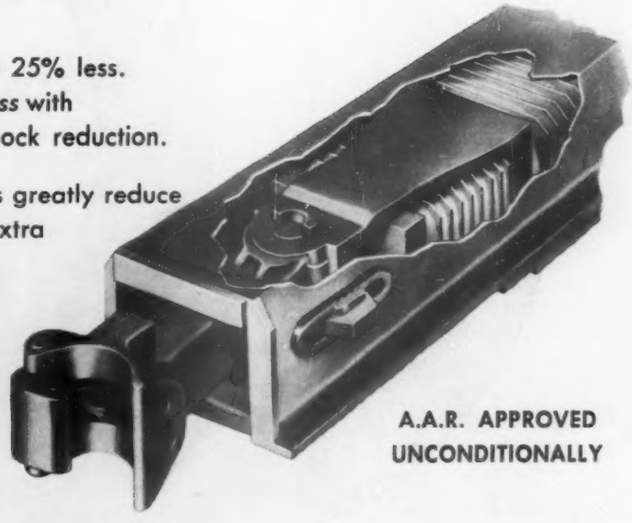


* "G", the unit of change in velocity which is equal to the pull of gravity or 32.2 feet per second per second.

Superimposed above are exact copies of two oscillograms. The red line records impact of two friction draft gear equipped cars, (169,000 lbs. on the rail) at 7.53 mph. Black line shows impact of same cars Twin Cushion equipped, at 7.64 mph.

Note that peak coupler forces with Twin Cushions are 25% less. Note also that the rate of stress rise or "G" change is *far less* with Waughmat Twin Cushions, indicating a corresponding shock reduction.

It's shock that damages lading and cars. Twin Cushions greatly reduce the degree of shock to both cars and lading. That's the extra protection provided when you specify Twin Cushions.



A.A.R. APPROVED UNCONDITIONALLY

for 'G' control . . . Specify

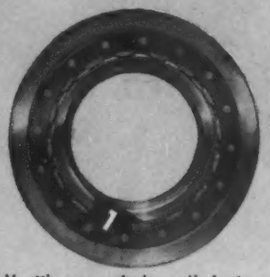
WAUGHMAT Twin Cushions

TRADE MARK REGISTERED

WAUGH EQUIPMENT COMPANY, New York • Chicago • St. Louis • Canadian Waugh Equipment Company, Montreal

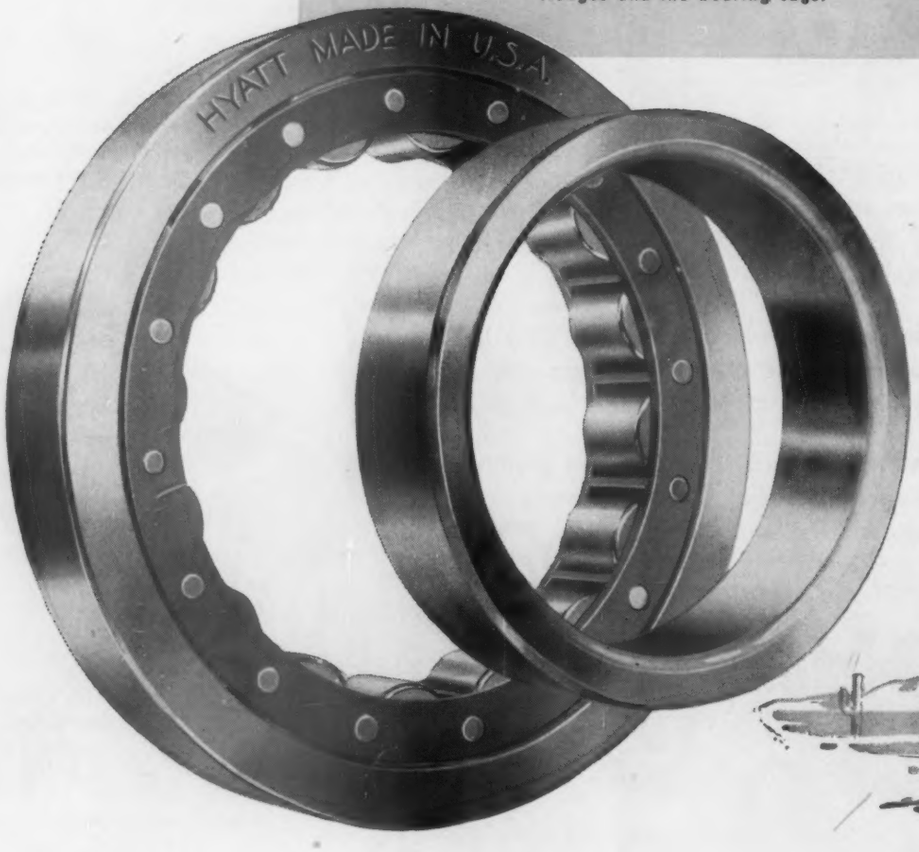
Again Hyatt leads the way

NEW PINION-END BEARING FOR TRACTION MOTOR ARMATURES HAS SUBSTANTIALLY LONGER LIFE AT PEAK EFFICIENCY!

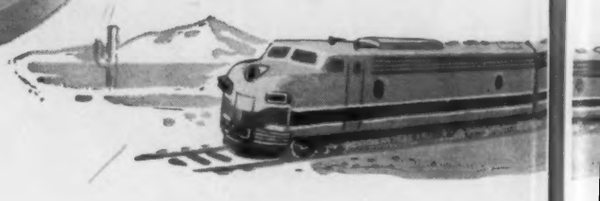


Hyatt's new design eliminates all rubbing contact between the race flanges and the bearing cage.

Unrestricted flow of lubricant to all bearing parts is achieved by new cage design.

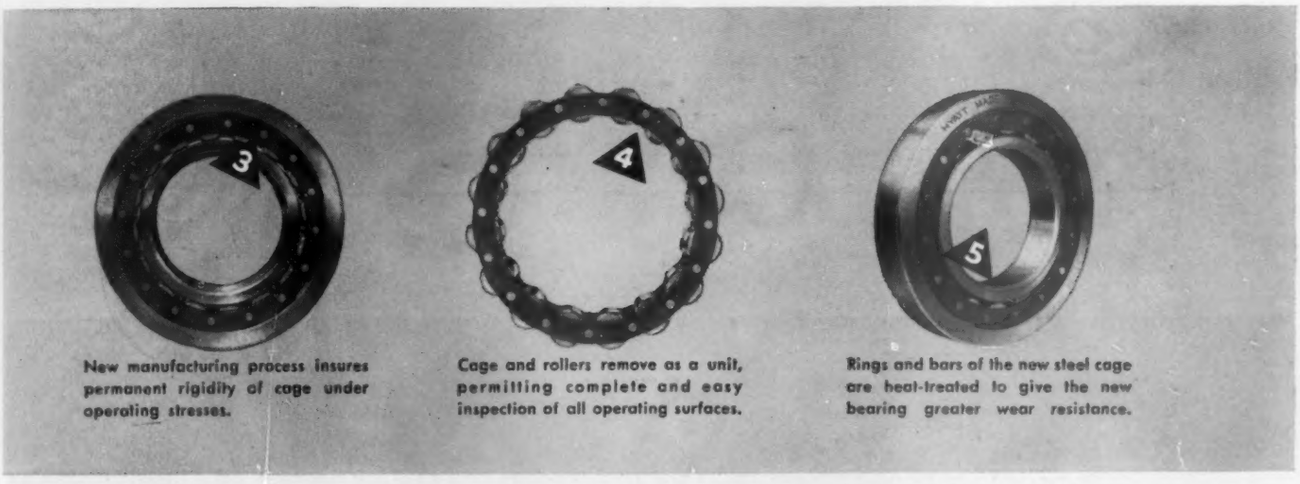


- No rubbing contact between cages and race flanges
- Improves flow of lubrication
- New case-hardened, roller-riding, steel cage
- Safer
- Longer lasting
- Facilitates inspection of all operating surfaces



in Roller Bearing design!

New "roller-riding" cage design eliminates rubbing contact between cage and race flanges . . . permits full-flow lubrication, easy inspection!

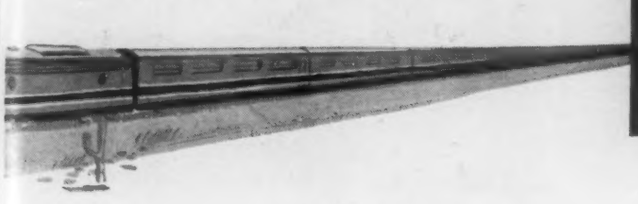


New manufacturing process insures permanent rigidity of cage under operating stresses.

Cage and rollers remove as a unit, permitting complete and easy inspection of all operating surfaces.

Rings and bars of the new steel cage are heat-treated to give the new bearing greater wear resistance.

Here's a new Hyatt advancement that will help keep your diesels out of the shop! Hyatt research has produced a superior new roller bearing for use at the pinion end of traction motor armature shafts. Now in production, this new bearing incorporates a completely new design which offers many operating advantages. A new "roller-riding" steel cage eliminates rubbing contact between cage and race flanges and permits improved flow of lubricant to all parts of the bearing; rings and bars of the new steel cage, case-hardened for greater resistance to wear, are assembled by a new Hyatt process to insure permanent rigidity of the cage under operating stresses. Cage bars conform to the shape of the rollers, and cage and rollers remove as a unit—permitting complete and easy inspection of all operating surfaces. The over-all result is an easily-inspected roller bearing with substantially greater life expectancy than bearings with "flange-riding" cages. This new Hyatt design can be your insurance against bearing failures at the pinion end of traction motor armatures. For further information write to Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.



FOR TRACTION MOTOR ARMATURE SHAFTS

HYATT

ROLLER BEARINGS

Clear the Track

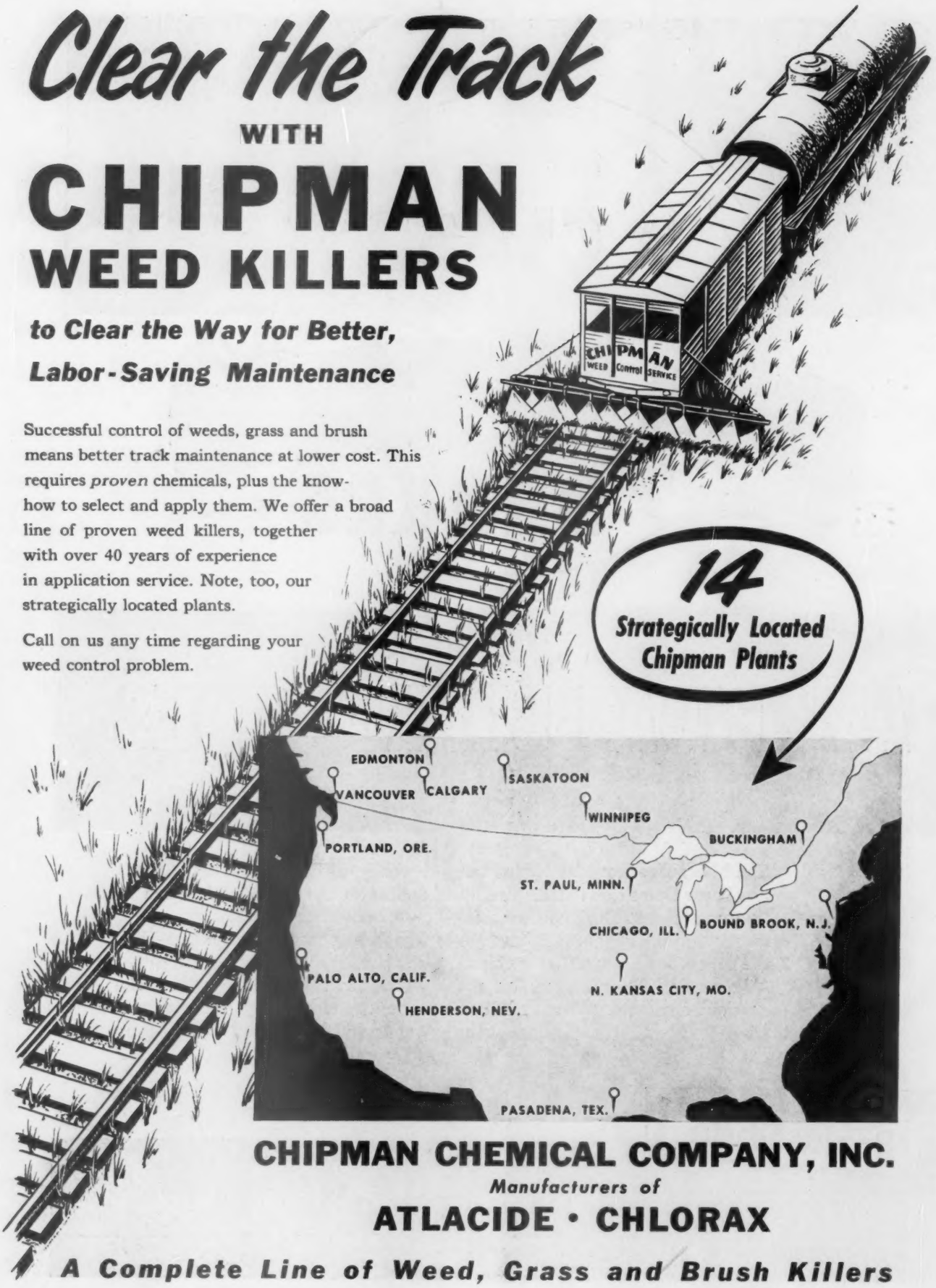
WITH

CHIPMAN
WEED KILLERS

to Clear the Way for Better, Labor-Saving Maintenance

Successful control of weeds, grass and brush means better track maintenance at lower cost. This requires *proven* chemicals, plus the know-how to select and apply them. We offer a broad line of proven weed killers, together with over 40 years of experience in application service. Note, too, our strategically located plants.

Call on us any time regarding your weed control problem.



CHIPMAN CHEMICAL COMPANY, INC.

Manufacturers of

ATLACIDE • CHLORAX

A Complete Line of Weed, Grass and Brush Killers

WESTINGHOUSE RAILROAD RADIO

PROVED IN NIGHTMARE TEST

APPROVED **INLAND LIME & STONE COMPANY**

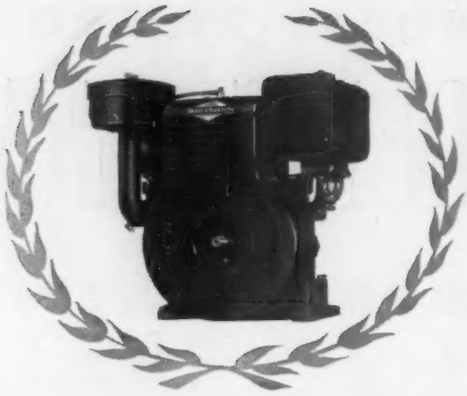
Inland Lime and Stone Company operates seven trains and eleven locomotives on 21 miles of main line and siding track in a quarry and dockside area. Conditions are severe, ranging from earth-shaking blasting to loading a fifty-ton car in less than five minutes.

AND — the electric locomotive cabs occupy one end of a gondola! That means that five-yard (approximately 7½ tons) bites of limestone are dropped into the gondola end, smack beside the cab *and the railroad radio*.

These rough conditions tell plenty about what a railroad radio can stand. In selecting railroad radio, Inland came to Westinghouse. (Since they required single frequency operation, they selected the Westinghouse MR radio, the FE predecessor).

For your railroad, the new Westinghouse FE meets all current needs, plus even more rugged construction than the MR. Regardless of your radio problems, don't fail to examine the Westinghouse FE, today's most available railroad radio. Send for booklet B-4748; write to Dept. A-46. Westinghouse Electric Corporation, 2519 Wilkens Ave., Baltimore 3, Maryland.

J-02246



1,000,000

INDUSTRIAL ENGINES

built in ONE year

It's a new world production record — never before accomplished. For 33 years BRIGGS & STRATTON has been establishing a long list of firsts. And now, in 1952, another is added.

BRIGGS & STRATTON is recognized as the pioneer and the leader in its field . . . setting new standards, year after year in engineering, in design, in engine performance and in precision mass production.

Whether you are a manufacturer, dealer or user of gasoline engine powered equipment — you are assured of top performance when you specify BRIGGS & STRATTON 4-cycle, single cylinder, air-cooled engines. They are the "preferred power" value all over the world.

BRIGGS & STRATTON CORPORATION
Milwaukee 1, Wisconsin, U.S.A.

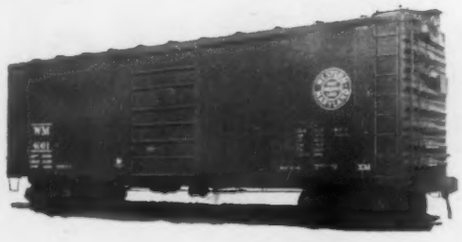
4 CYCLE
BRIGGS & STRATTON
GASOLINE ENGINES

BRIGGS & STRATTON 4-cycle, single cylinder, air-cooled engines are available from ¾ to 8¼ hp. — in many models and types. They are preferred power for hundreds of types of machines, tools and appliances. All are backed by a world-wide service organization, factory supervised, unequalled in the industry.

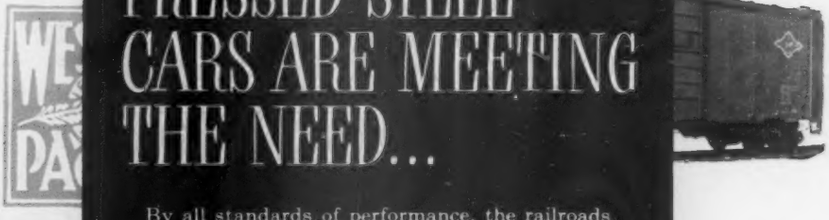
In the automotive field, too, Briggs & Stratton is the recognized leader — and the world's largest producer of locks, keys, and related equipment.

Santa Fe

SEABOARD AIR LINE RAILWAY



SOUTHERN PACIFIC LINES



Rock Island

Looking at the over-all picture

PRESSED STEEL CARS ARE MEETING THE NEED...

By all standards of performance, the railroads of the United States during 1952 established many new records of operating efficiency. Proper handling of products from mines, forest, fields and industry is helping our railroads become the greatest on earth.

Pressed Steel Car Co. is proud of its part of contributing quality boxcars to meet the need of today's stepped up economy. Its box cars possess all the prime essentials necessary in meeting the need by their simplified design, greater flexibility and abundant strength. Material is moved more economically with fewer breakdowns.

Call on us for box car, refrigerator car, gondola or hopper car specifications and special requirements needed to meet today's hauling demands. Be prepared for the road ahead.

PSC **PRESSED STEEL CAR COMPANY, INC.**
6 N. Michigan Avenue, Chicago, Illinois

GETTING THE GOODS ON A CAR KILLER

Operation impact! A planned collision to see how the standardized PS-1 takes it. The all-welded hopper ca is fully loaded as it comes down the ramp to smash int the PS-1. Speeds as high as 18 mph. can be obtained in order to get the data that makes the PS-1 a better and better box car.

RECORDING THE EVIDENCE

At the scene of the test, Research & Development engineers using the latest electronic equipment record the information from the impact. The stresses and strains are measured precisely and then the facts are used in the design and construction of the PS-1. Tests such as this make the improvement of the PS-1 continuous.

Science builds a better box car

RESEARCH AND DEVELOPMENT TESTS ARE THE *FIRST* PROOF THAT EVERY PS-1 CAN TAKE IT

Pullman-Standard Research and Development engineers have never stopped testing, proving and *improving* the standardized PS-1 box car. They have continued to anticipate the railroads' needs nation-wide for better box cars. That's why 56 railroads have already ordered 50,000 PS-1s. That's why these standardized PS-1 box cars are setting economical, day-after-day operating records.

Under laboratory control, Research and Development experts reproduce jolting service conditions—often more rigorous than cars would ever encounter. Such shock treatments and other tests are only part of the story of car building to meet the needs of American railroads from coast to coast. Pullman-Standard Sales and Service engineers also are following through continually with "on line" investigations of their own toward an improvement of PS-1 specifications.

All this is the Pullman-Standard way of building a quality box car that *stays in service longer* and assures railroads of time for *more revenue-producing shipments.* Still, the cost is lower than cars built to individual specifications. Ask for fast delivery schedules on the PS-1 standardized box car.

YOUR NEEDS CREATE THE PULLMAN "STANDARD"

PULLMAN-STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

79 EAST ADAMS STREET, CHICAGO 3, ILLINOIS

BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON

THE PROOF IS IN YOUR OWN YARD

Look at any freight consist and count the number of PS-1s. Here is proof that the standardized box car is the best answer to the rising costs of today's freight operations. The sturdy PS-1 is being bought and reordered by a majority of the country's leading railroads—proof that quality as well as quantity lead to the selection of a box car designed for long service life.

SALES AND SERVICE ENGINEERING

Pullman-Standard Sales & Service engineers travel well over 100,000 miles a year for facts on box car operating conditions. Above: data on truck wheel loadings were used by our Research and Development engineers to develop PS-1 floors that stand up under heavier materials handling equipment carrying heavier loads. All components are thus engineered for dependability.


HONEYWELL
372

CLEAR BOARD!

Big benefits are accruing to the nation's railroads these days—and more are ahead—all as a result of Honeywell's entry into the car heating field.

Look how competition in this field has benefited railroads:

- *the cost of passenger car heating under competitive bidding has been substantially reduced.*
- *passenger car heating systems have been greatly simplified with a marked reduction in maintenance parts.*
- *steam piping has likewise been simplified with a significant reduction in steam consumption for car heating.*

Outright competition has aided the industry before in such fields as car lighting, car electrical equipment and diesel locomotives. Now, the advantage of selection and comparison are yours in this important car heating field as well.

Today, proof of Honeywell's efficiency, dependability and economy is evident*. Roads with Honeywell-equipped cars can look forward to more savings in operating expenses and maintenance costs.

And for service, Honeywell can't be beat! Over 100 branch offices in key cities from coast to coast provide fast, efficient service of experienced control engineers.

Call Honeywell on your next heating job. Find out what the world's largest manufacturer of precision temperature controls can contribute to your railroad's car heating problem.

MINNEAPOLIS
Honeywell

H HONEYWELL Transportation Division

* Today Honeywell Moduflow car heating systems are proving themselves in use on the cars of twenty different railroads across the nation.

Rain in the air means water on the rail . . . poor visibility and increased danger for all personnel. Rainy weather can also cause drive slippage on a motor car—*unless* it's equipped with a Fairbanks-Morse positive chain or vee-belt drive.

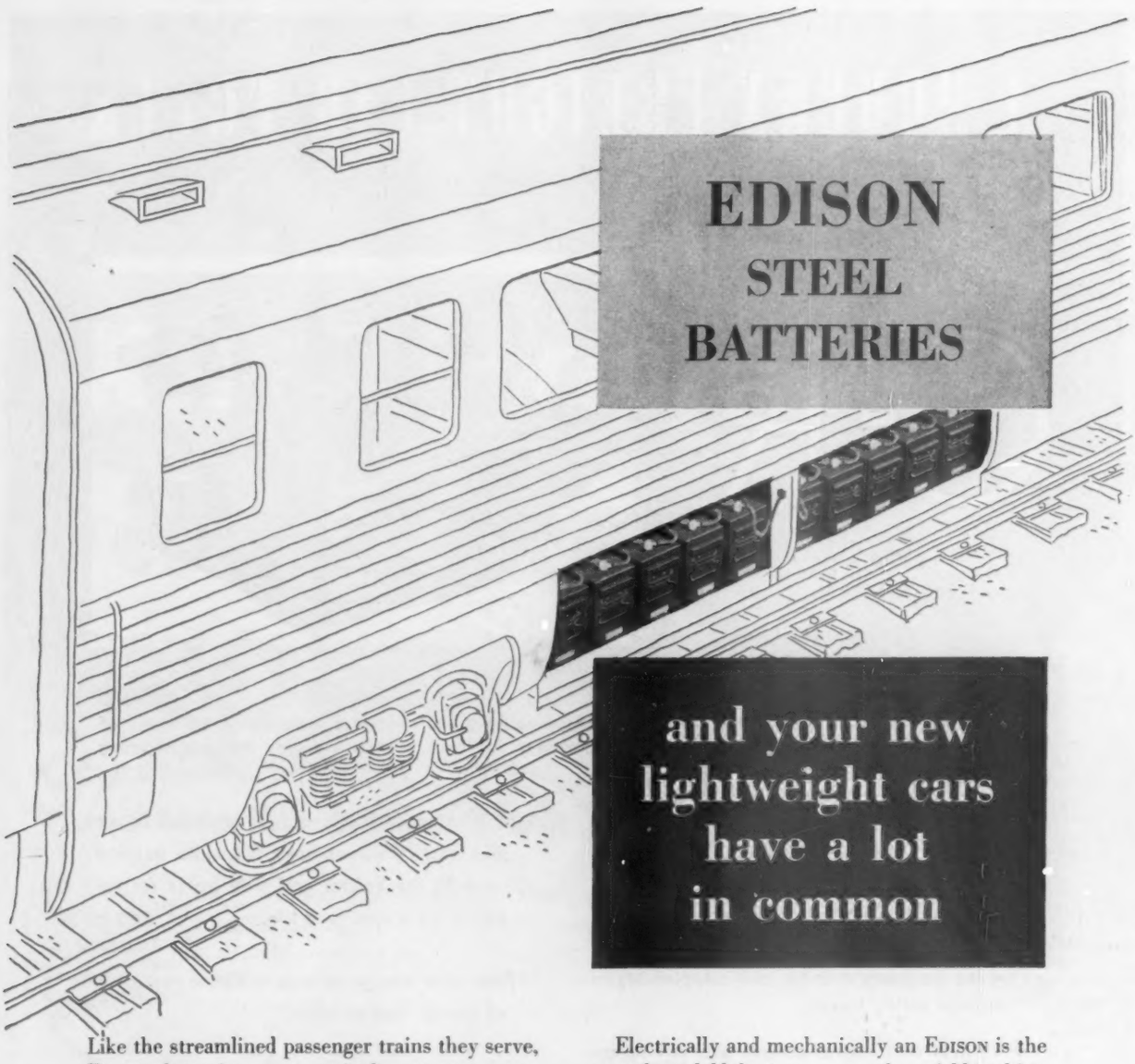
Positive drive . . . immediate reverse . . . four-wheel brakes . . . grouped controls . . . full visibility—*in all weather.* These are a few of the reasons why the Fairbanks-Morse Model 101 Motor car has won a reputation for safety—*in all weather.*

For all maintenance, inspection and signalling service, look to the complete line of Fairbanks-Morse cars. You'll find the answer to safe, reliable transportation. Fairbanks, Morse & Co.

FAIRBANKS-MORSE

a name worth remembering when you want the best

RAIL CARS • RAILROAD EQUIPMENT • PUMPS • SCALES • ELECTRICAL MACHINERY
DIESEL AND DUAL FUEL ENGINES • DIESEL LOCOMOTIVES • MAGNETOS



EDISON STEEL BATTERIES

and your new lightweight cars have a lot in common

Like the streamlined passenger trains they serve, EDISON batteries are amazingly strong *yet unusually light.* Inside and out, each cell is made of steel. Result is the strongest cell construction known . . . plus a weight saving up to 2,000 pounds per car.

Electrically, too, they're unique. There are no finish-rate limitations. Recovery after every interval of discharge can be just as rapid as generator output permits. Result: high road capacity . . . seldom any need for yard charging. They have no discharge limits; will operate self-regulating inversion equipment correspondingly longer in emergencies.

What's more, overcharging, over-discharging, even accidental reverse-charging or short circuiting can't harm them.

Electrically and mechanically an EDISON is the *most dependable* battery you can buy. Add to this a service life so long that it results in the lowest over-all cost of operation. For more facts, send for Bulletin SB 3802; see your Edison field engineer.

Most Dependable Power—
Lowest Over-all Cost . . .
***you get both with an* EDISON**

EDISON
Nickel · Iron · Alkaline
STORAGE BATTERIES
Edison Storage Battery Division of
Thomas A. Edison Incorporated, West Orange, N. J.

A MODERN FREIGHT CAR TRUCK

Combining Superior Riding Qualities and Long Service Life

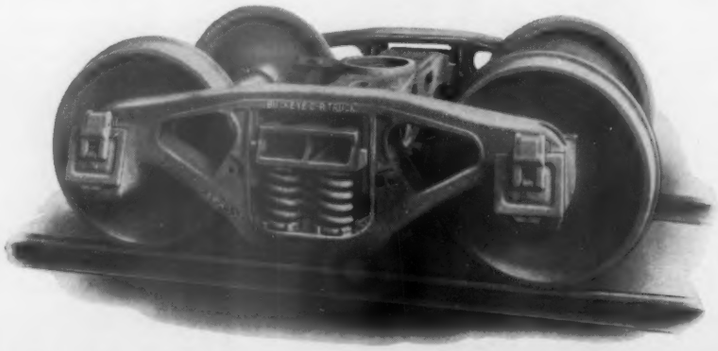
THE BUCKEYE

C-R

TRUCK

The Buckeye C-R (Cushion-Ride) Truck is designed to meet the requirements of all types of modern freight service. It includes the following features which provide superior riding qualities and long life:

- One side frame design of a given capacity is suitable for all AAR Standard or Alternate Standard coil springs with travels of 1-⅝", 2-½", 3-1/16", or 3-11/16".
- Full box section bolster end construction provides maximum strength and adaptability to various spring travels.
- Vertical and lateral control and self squaring action are independent of the load carried.
- Symmetrical friction wedges arranged in the side frame columns have full width bearing on both the bolster and side frame for reduced wear and long life.
- Low rate wedge springs minimize reduction of control due to wear.
- Friction parts are self cleaning to prevent accumulation of dirt in service.



Ⓑ

THE BUCKEYE STEEL CASTINGS COMPANY

New York, N. Y. Columbus, Ohio Chicago, Ill.

Now!

GENERAL CHEMICAL'S

Rite-o-way* BRAND

TCA-CHLORATE

★ ***Outstanding for Control of Perennial Weeds and Grasses!***

★ ***Especially Effective for Early Spring and Late Fall Applications!***

GENERAL CHEMICAL WEED CONTROL

Recent AREA† tests have shown a formulation of Sodium Trichloroacetate and Sodium Chlorate to be an outstanding multi-purpose weed killer, particularly where perennial grasses are a problem. Most effective results were obtained when used for early spring and late fall applications.

General Chemical, long a leader in railroad weed control, is now producing "Rite-o-way" Brand TCA-CHLORATE especially for railroad use. It contains a *special, high-strength* formulation of Sodium Trichloroacetate and Sodium Chlorate. When applied in pre-frost and post-frost months, it provides maximum root control for perennial weeds and grasses.

Let us tell you more about General's "Rite-o-way" Brand TCA-CHLORATE formulation . . . and about the results that General Chemical's proven weed control program has achieved for leading roads. A confidential conference with a General Chemical weed control specialist will show you how to take full advantage of General's "customized" weed control program for 1953. For further information, write to the address below.

†See AREA Bulletin Vol. 54, No. 507-Feb., 1953

*General Chemical Trade-Mark

Weed Killer Department

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Following are General Chemical's Rite-o-way Brand Weed Killers. One or more of these can provide the right combination to give outstanding weed control results for your road. Investigate today!

TCA-CHLORATE
Special High Strength Formulation

Contains a special high-strength formulation of sodium trichloroacetate and sodium chlorate, now widely recognized as the outstanding all-purpose weed control material. Provides maximum root control for perennial weeds and grasses. Most effective when applied in post-frost and pre-frost months (early spring and late fall). Mid-summer treatments may be used for control of annual growth and perennial seedlings.

FORMULA 7
(TCA, Acid in an Oil Base)

For general purpose grass control. Used with diluting oil and one of the additives listed for over-all control of weeds.

FORMULA 7
(with 2,4-D)

Combines maximum contact "knock-down" of heavy foliage and residual control of root crowns, providing long-lasting suppression of regrowth. Used with diluting oil where grasses predominate, but includes sufficient 2,4-D to control moderate infestations of broad-leafed weeds.

FORMULA 7 B-D

Used with diluting oil for control of very resistant weeds and grasses. The amount of 2,4-D has been increased and fortified by pentachlorophenol.

SODIUM TCA
(Liquid Concentrate)

For control of noxious grasses. For all-purpose weed control when used with sodium chlorate or one of the 2,4-D additives listed.

EMULSIBLE AROMATIC OIL

Low cost contact weed control for temporary clearance of seedling growth and as interim treatment between seasonal applications for perennial root control.

2,4-D AMINE ADDITIVE

Used simultaneously with Formula 7 or mixed with Sodium TCA for all-purpose weed and grass control.

2,4-D ESTER ADDITIVE

For use with Formula 7 where cotton or other plants susceptible to 2,4-D are not adjacent to treated area.

2,4-D—2,4,5-T ESTER
Brush Killer (Water Soluble)

"Stop the express....

To direct popular attention to the remarkable achievements of American railroads, this advertisement has been run in national business magazines by **Westinghouse Air Brake Company.**

....Runaway freight coming!"

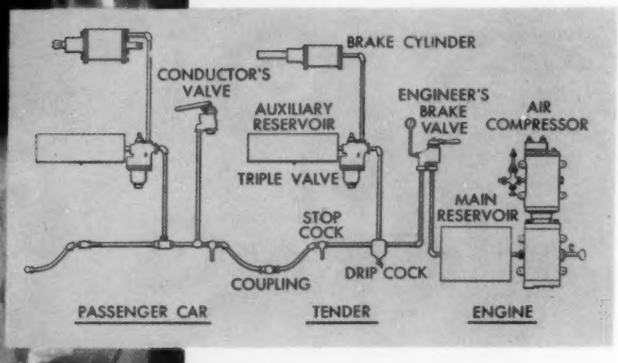
THIS was a true cry of disaster back in the days of primitive train brakes. When a train broke in two, the runaway section had no effective brakes at all, and the heavy cars would roll until they stopped by themselves, or were wrecked.

These runaway trains threatened the lives of everyone who worked on or near the railroad. Safety-conscious railroad men frantically searched for a way to end the hair-raising loss of lives and property.

In answer, George Westinghouse devised the now famous Westinghouse *Automatic* Air Brake as shown in the diagram below. When a train broke in two, this new brake stopped both halves quickly, surely, and automatically.

This brake, invented by George Westinghouse when he was only 28, is considered one of the great inventions of all time. With modern refinements, it is used on practically every railroad train in the world today!

. . . . . *But always remember that Westinghouse Air Brake Company makes more than brake equipment. It is the world's leading manufacturer of railroad switch and signal devices. It is a pioneer in the field of advanced electronic research. It offers to industry a complete line of heavy-duty air compressors, actuators and control equipment, as well as thoroughly engineered pneumatic control systems to do a wide range of industrial tasks. It manufactures portable air compressors, pneumatic tools and internal combustion engines. In addition, Westinghouse Air Brake Company is establishing a Central Research Laboratory for basic and applied research. Why not take advantage of these facilities and put them to work for* you?



HOW THE AIR BRAKE OPERATES

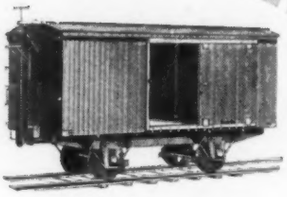
This simplified diagram illustrates the early Westinghouse Automatic Air Brake. Each car has a reservoir of compressed air, kept charged by the locomotive air compressor. When the engineer reduces the pressure in the brake pipe, the triple valve feeds air from the car reservoir into the brake cylinders. If the brake pipe ruptures, pressure is lost throughout the entire train, causing the brakes to be applied on every car.

Westinghouse Air Brake COMPANY

WILMERDING, PA.

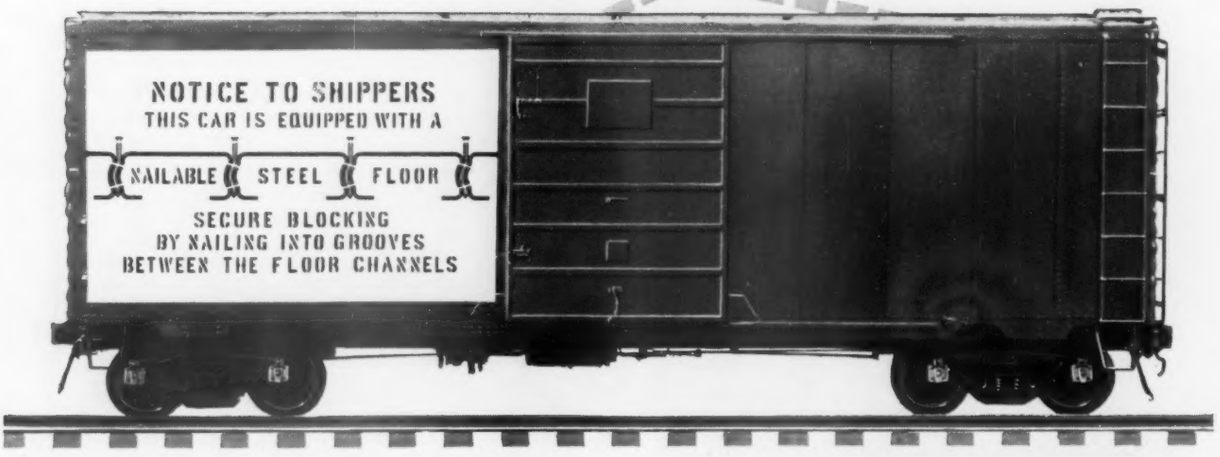
AIR BRAKE DIVISION · UNION SWITCH AND SIGNAL DIVISION
INDUSTRIAL PRODUCTS DIVISION · LE ROI COMPANY
MELPAR, INC.

Good in their day...
but their day
is gone forever!



TODAY YOU'LL WANT FREIGHT CARS WITH THE FLOOR OF THE FUTURE...

NAILABLE STEEL FLOORING



The concentrated weight of lift trucks in boxcars . . . the impact of mechanical loading devices in gondolas . . . NAILABLE STEEL FLOORING withstands them all! Because of its channel form, N-S-F, when welded to the car structure, actually reduces stresses of impact shocks at critical points in the underframes.

Yet remember: N-S-F carries *blocked* and *skidded* loads, too! It holds them with maximum security. And its nail-holding efficiency is *not* reduced by repeated nailing operations. NAILABLE STEEL FLOORING makes every gondola a double-duty car—capable of handling rough freight as well as finished freight requiring blocking.

Made from tough N-A-X HIGH-TENSILE steel, N-S-F adapts *all* cars to today's needs.

Only NAILABLE STEEL FLOORING withstands all ways of loading—and carries every kind of load.

53-SF-2A

N-S-F for NAILABLE STEEL FLOORING
SAFER-STRONGER

Sales representatives in Chicago, Philadelphia, St. Louis, Atlanta, Omaha, Denver, San Francisco, Montreal and New York.

GREAT LAKES STEEL CORPORATION
STEEL FLOOR DIVISION — Ecorse, Detroit 29, Mich.

NATIONAL STEEL CORPORATION

PATENTS PENDING

LOOKING FOR – STRETCHY SOLDER?
RUBBERY GLASS? RESILIENT ASBESTOS?

Investigate

SILICONE RUBBER

G-E silicone rubber now replaces asbestos gaskets in chemical kettles like this.

Fused-glass electrical connections in this washing machine have been supplanted by G-E silicone rubber.

G-E silicone rubber replaces silver solder seams in this steam iron.

Have you a materials problem? Perhaps you're presently using materials such as glass, asbestos, solder, mica or graphite to join, resist chemical attack or insulate an assembly—particularly at high or low temperatures. But, could you reduce replacement or assembly costs, improve the design or lengthen the life of your product if these common materials were *resilient?*

Rubber is resilient, but ordinarily you wouldn't think of rubber for use at high or low temperatures. General Electric silicone rubber, however, remains *flexible* at temperature extremes, is chemically resistant and dielectrically strong. That's why it is being used to replace—and improve upon—many common engineering materials. You can see a few examples on this page.

FREE BOOKLET GIVES MORE FACTS

Find out more about the many possibilities G-E silicone rubber offers you. Write for your copy of "Imagineering with Silicone Rubber." This informative booklet suggests how *you* can put G-E silicone rubber profitably to work in *your* business.

CLIP AND MAIL TODAY!

General Electric Company
Section 351-2D
Waterford, New York

Please send me your new free booklet "Imagineering with Silicone Rubber." I am interested in G-E silicone rubber for:

( ) Seals and gaskets
( ) Wire and cable insulation
( ) Tapes and cloths
( ) Sponged products
( ) Belting
( ) Boots, sleeves, bellows
( ) Hose and ducting

Name_____

Firm_____

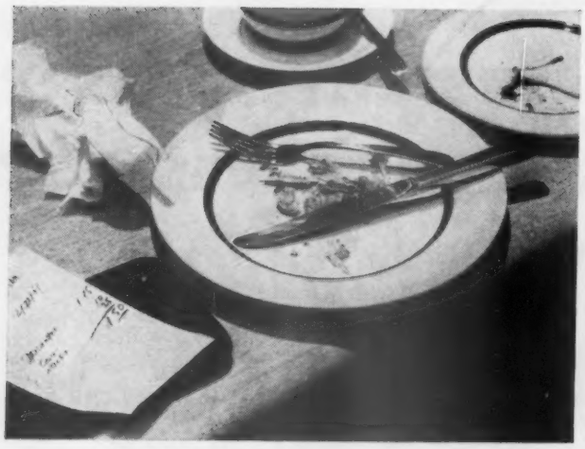
Street_____

City_____ Zone_____ State_____

(In Canada, mail to Canadian General Electric Company, Ltd., Toronto)

G-E silicones fit in your future

GENERAL ELECTRIC



you can't expect

BIG-CHECK BUSINESS

on bare-top tables

NAPERY

CAN MAKE THE DIFFERENCE

- Quiet Atmosphere
- Inviting Appearance
- Better Sanitation
- Greater Protection From Spillage

Simtex Napery stays
gleaming white and
fresh longer, thanks to
the exclusive Basco finish.

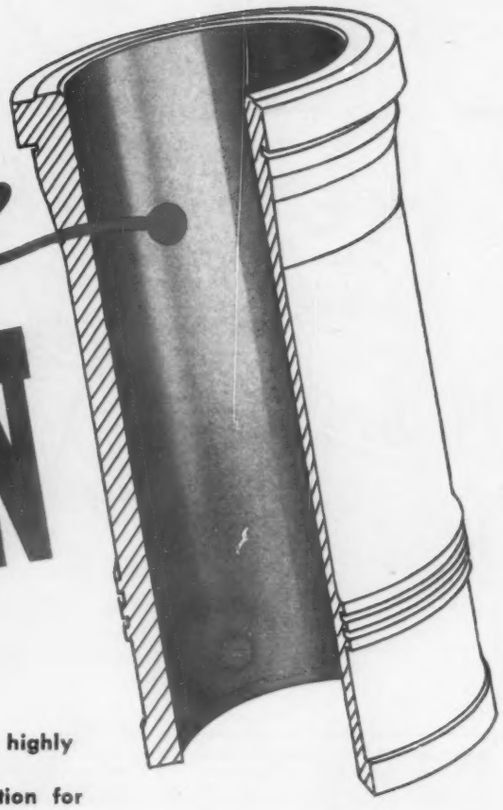
Simtex

SIMTEX MILLS, *Division of Simmons Company,* 40 WORTH STREET, NEW YORK 13, N. Y.

SIMTEX COVERS MORE TABLES THAN ANY OTHER MAKER IN AMERICA

you don't need chrome plating *here* if it's made of

HUNT-SPILLER GUN IRON



Gun Iron is a super-refined iron, highly resistant to frictional wear. For that reason it has an application for products which, if made of other materials, would necessarily need the addition of chrome plating to provide the required service life.

The part illustrated is a Baldwin "600" series liner. Many such liners now in use are chrome plated. The same part produced in Gun Iron and Parco Lubrized—but without plating—can be supplied at approximately half the price and service records have repeatedly demonstrated a wear life closely comparable to liners which have been plated.

In addition to its long-wearing qualities, Gun Iron provides exceptional resistance to extreme pressure, high heat, corrosion and erosion. Our engineers and laboratory technicians can help you determine the advantages of Gun Iron for your parts. Our extensive manufacturing facilities are a dependable source for machining them accurately and economically.

a new Catalog

This new catalog of Diesel Parts shows details of many parts currently being produced by Hunt-Spiller. Write for your copy—no obligation, of course.

HUNT-SPILLER GUN IRON • HSGI • AIR FURNACE PROCESS

HUNT • SPILLER

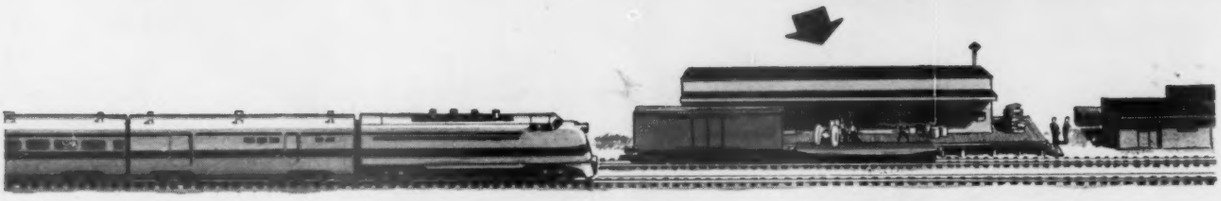
MANUFACTURING CORPORATION

379 DORCHESTER AVENUE • SOUTH BOSTON 27, MASS.

Canadian Representatives: Joseph Robb & Co., Ltd. 4050 Namur St., Montreal 16, P. Q.

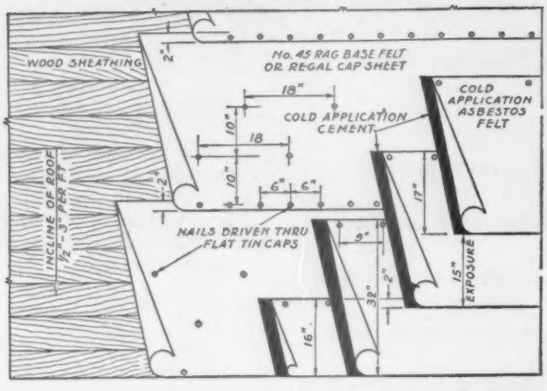
Export Agents: International Rwy. Supply Co. 30 Church Street, New York 7, N. Y.

When your hard-to-reach buildings need reroofing



...Johns-Manville Cold Application Built-Up Roofs offer economical application by company crews

FOR WOOD DECKS ONLY



Plan showing method of laying Johns-Manville Cold Application Built-Up Roof.

For further information, regarding this and other types of Johns-Manville roofs, see your J-M Representative, or write Johns-Manville Box 60, New York 16, N. Y.

WHEN reroofing is necessary on small buildings located in remote places along the right of way, it is often impractical to apply the conventional hot application built-up roof.

To meet such conditions, Johns-Manville has developed an Asbestos Cold Application Built-Up Roof. The roof is made up of special Johns-Manville Asbestos Felts that are cemented together in application with a cold applied cement brushed in place.

This eliminates the need for roofing kettles, and saves the time required to heat the binders used when hot application roofs are applied.

Built for long years of service, Johns-Manville Cold Application Built-Up Roofs offer an economical and practical method for roofing small new buildings and replacing those on old buildings.

JOHNS-MANVILLE JM PRODUCTS **Johns-Manville** 95 YEARS OF SERVICE TO TRANSPORTATION

GREAT NORTHERN RAILWAY PHOTO

IMPROVED HIPOWERS

IMPROVE TRACK

The Montana Rockies, as all other mountainous sections, put to the severest tests the skill in the planning and building of dependable roadbed and track.

It is in such country that track takes the toughest beating under every extreme of weather. Here track must withstand constant expansion and contraction, and the tremendous stress and shock of fast passenger trains and heavy freights.

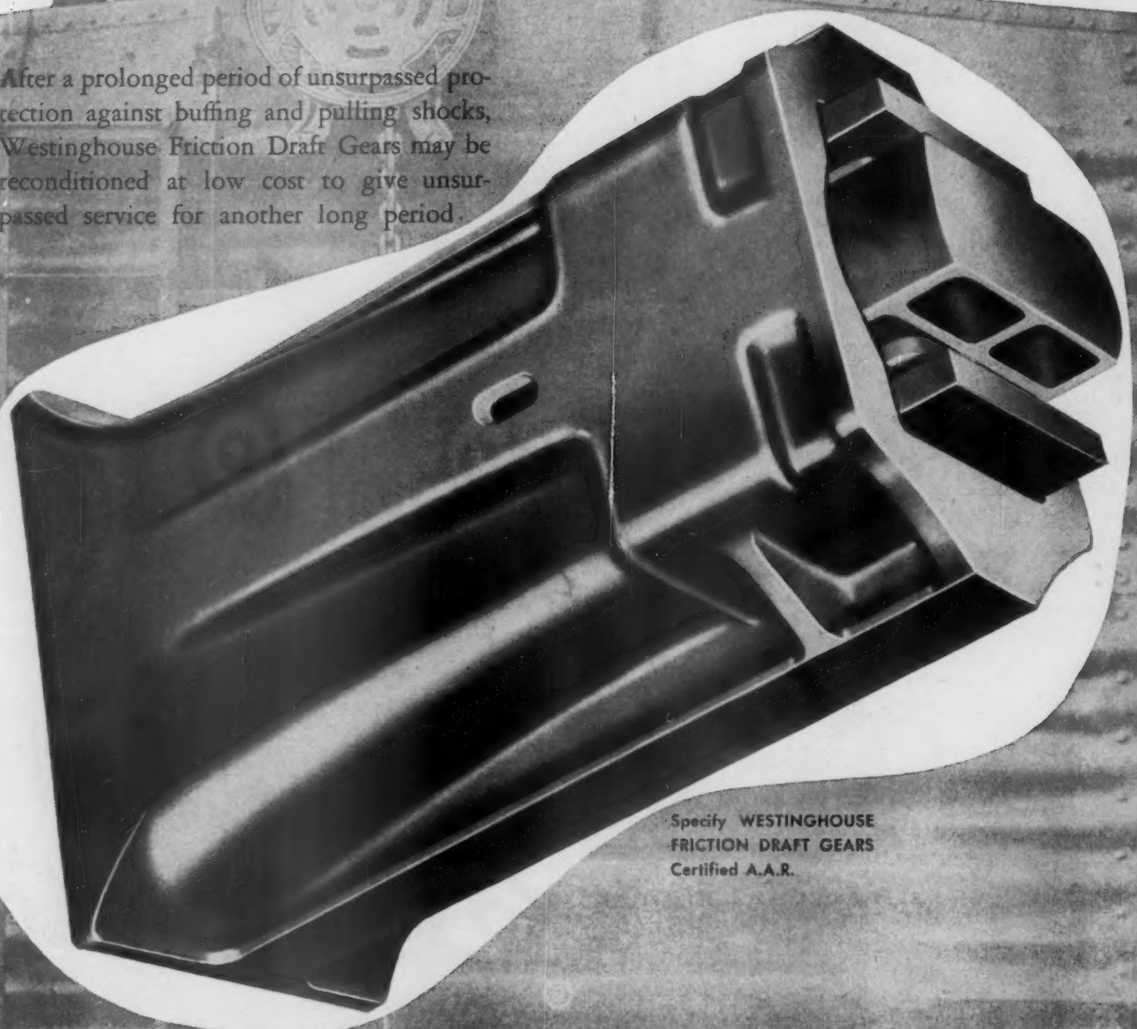
That's why the roads spend so much to lay it and to maintain it carefully.

THE NATIONAL LOCK WASHER COMPANY, NEWARK 5, N. J., U. S. A.

A COMPLETE LINE OF RAILWAY SPRING WASHERS

PROLONGED LIFE

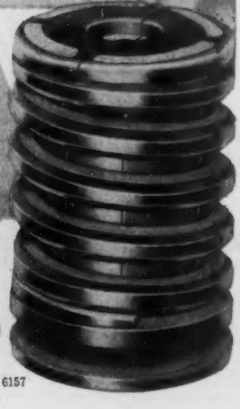
After a prolonged period of unsurpassed protection against buffing and pulling shocks, Westinghouse Friction Draft Gears may be reconditioned at low cost to give unsurpassed service for another long period.



Specify WESTINGHOUSE
FRICTION DRAFT GEARS
Certified A.A.R.

absorption STURDINESS endurance CAPACITY

According to the Association of American Railroads, more than 98% of cars in freight-carrying service are A.A.R. construction and are equipped with Friction Draft Gears.



CARDWELL FRICTION
BOLSTER SPRINGS
for A.A.R. and long travel springs

6157

Cardwell Westinghouse Co., Chicago
Canadian Cardwell Co., Ltd., Montreal

A Real Labor-Saver!

No. C-1164 Flexible Metallic Conduit

Maintenance Savings have made

Vapor Flexible Metallic Conduit

the First Choice of Cost-Conscious Railroads

Vapor Flexible Metallic Conduit has no metal-to-metal contacts. Spring-backed gaskets follow-up automatically . . . need no adjustment for tightness . . . may be quickly replaced without breaking the pipe joint.

This modern steam line connector flexes freely in any direction; retains its full freedom of movement under highest trainline pressure; always provides a full opening for unrestricted steam flow.

Available in various types, with metal-encased asbestos insulation when desired, Vapor Flexible Metallic Conduit saves labor, time and trouble. Write for literature and recommendations.

Vapor Heating Corporation 80 EAST JACKSON BLVD., CHICAGO 4, ILL.

NEW YORK • ST. PAUL • DENVER • ST. LOUIS • ATLANTA • WASHINGTON • PHILADELPHIA
SAN FRANCISCO • JACKSONVILLE • RICHMOND • HOUSTON • MONTREAL • LOS ANGELES

DOW

PENTA TREATED CAR LUMBER GIVES LONGER SERVICE, CUTS REPAIR COSTS

Wood flooring, siding and framing lasts 2 to 4 times longer when treated with clean PENTA

THE DOW CHEMICAL COMPANY
Dept. PE 3-3A2; Midland, Michigan
Please send me:

_____ List of PENTA treating plants.

_____ Please have a technical representative call.

Name_____

Title_____

Company_____

Address_____

City_____ State_____

PENTA*-treated car lumber pays off in service year after year. Records prove that treated lumber is one sure way to cut maintenance costs.

PENTA keeps flooring, siding and framing strong and serviceable for many extra years by controlling decay. Longer wood life means fewer trips to the repair shop and big savings in replacement costs.

Stock pens, loading chutes and platforms, too, remain safe and serviceable longer when treated with PENTA.

Be sure to include PENTA in your specifications for new car construction and for all repair lumber. It's the sure, safe way to cut costs. For complete information about *PENTA-chlorophenol write to THE DOW CHEMICAL COMPANY, Midland, Michigan.

you can depend on DOW CHEMICALS

DOW

HIGHEST adaptability

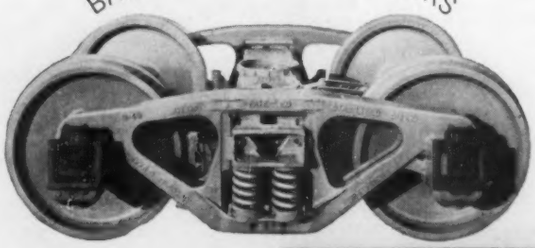
slow to high speeds — empty to capacity loads

"toys or tanks"

both get a passenger car ride

— in freight cars equipped with Barber Stabilized Trucks. That's because the variable friction members in Barber Trucks adjust automatically to every change in track or speed. They exert a stabilizing action that tames excessive vibration, shocks and lateral movement, thus making every ride a soft ride. Over 300,000 car sets of Barber Stabilized Trucks have been specified.

BARBER STABILIZED TRUCKS



* *Barber Side Springs carry part of the load, increasing capacity.*

6174

STANDARD CAR TRUCK COMPANY
332 SOUTH MICHIGAN AVE., CHICAGO, ILL.

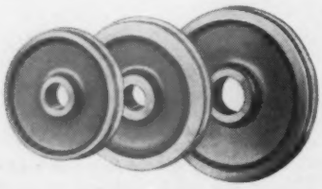
"Pedigreed" blocks

for Edgewater ROLLED STEEL Wheels

Every block from which an Edgewater Rolled Steel Wheel is made carries a serial number that identifies the open hearth furnace heat from which it was made. This identification is carried through all succeeding processes, so the complete history of every Edgewater wheel is a matter of complete record. This "pedigree" enables us to maintain and improve the quality of Edgewater wheels.

Ingots are bottom-poured under carefully controlled conditions.

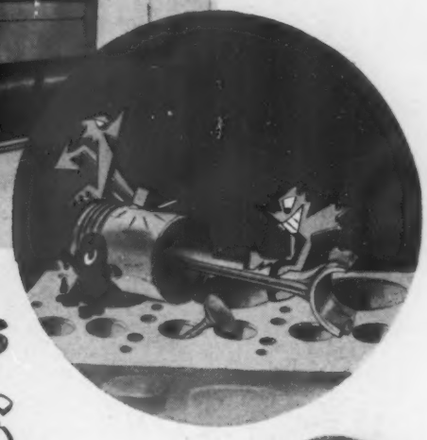
After cooling, ingots are "sliced" into blocks, which are inspected, weighed and individually numbered.



E **Edgewater Steel Company**

P. O. BOX 478

PITTSBURGH 30, PENNA.



Star Boarder in the Shops because of WEARMITES

It's the WEARMITES in Diesel motor oil . . . those "engine termites" — Grit, Dirt and Tarry Sludge . . . that foul up running and maintenance schedules. Where there's dirty oil — there you'll find WEARMITES — and the sound, sure way to eliminate them is . . . WIX ENGINEERED FILTRATION.

WIX ENGINEERED FILTRATION provides prescription filtration for your lubrication needs with proven types of filter cartridges, designed and engineered to meet the varying conditions posed by passenger, freight or yard operation. You may choose between interlapped white cotton thread construction, colored cotton threads or a new WIX filtrant of finely divided, high rag content, felted paper — hydraulically packed. Thus, you can key *your* filtration practice to suit your running conditions and your filter change schedule . . . always keeping lubricating oil "in the pink".

Solve your filtration problems with WIX Railroad Oil Filter Cartridges. Keep engines *out* of the shops *longer* . . . running *smoother* . . . and enjoy the economy of WIX ENGINEERED FILTRATION. Write for full particulars today!

Precision construction . . . controlled density . . . uniform quality . . . self-contained sealing gaskets and many other WIX *plus* features add up to WIX Engineered Filtration. Whether for Lubricating or Fuel Oil, crush-proof, non-collapsible WIX Filter Cartridges show a decided dollars and cents advantage for you.

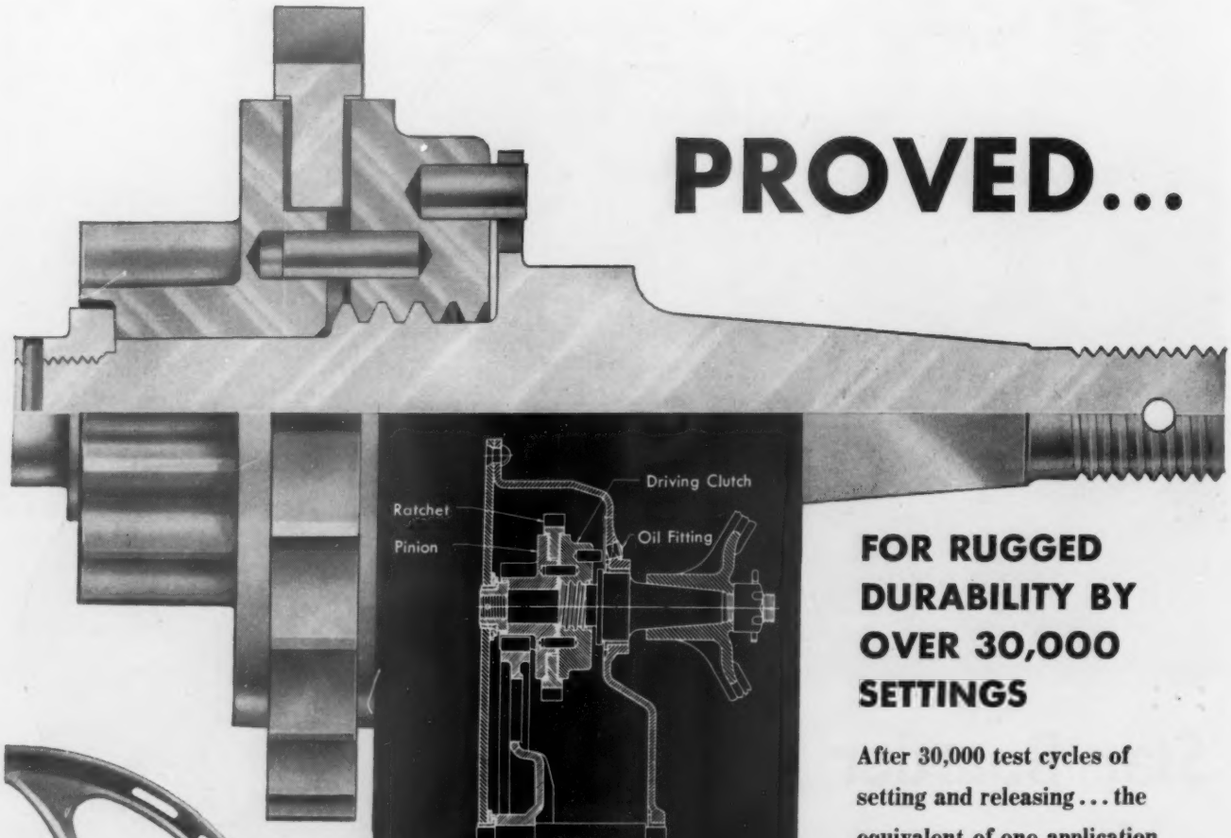
LUBE wix FUEL

RAILROAD OIL FILTERS

WIX CORPORATION · GASTONIA, N. C.

WAREHOUSE STOCKS IN: GASTONIA · ATLANTA · NEW YORK · ST. PAUL · ST. LOUIS · SACRAMENTO

PROVED...



FOR RUGGED DURABILITY BY OVER 30,000 SETTINGS

After 30,000 test cycles of setting and releasing... the equivalent of one application daily for 85 years... this efficient Equipco Non-Spin Wheel Brake Clutch shows no appreciable wear. Smooth operation is unaffected by either moisture or grease.

NON-SPIN WHEEL HAND BRAKE

Nothing has been left to guesswork. Every component part of the Equipco Non-Spin Wheel Hand Brake has been laboratory-tested for strength... the brake has been tested to destruction and has proved its ability to outlast any freight car.

You get a brake easily operated with one hand only... quick response ... proved durability—a "no-creep" brake which will hold a car firmly anchored until purposely released. It's really SAFE.

We'd rather *prove* the safety features of the Equipco brake than talk about them. We'll be glad to demonstrate its many advantages—in actual service tests—any time, any place you wish.

UNARCO

UNION ASBESTOS & RUBBER COMPANY

Equipco Hand Brake Division

332 SOUTH MICHIGAN AVENUE • CHICAGO 4, ILLINOIS

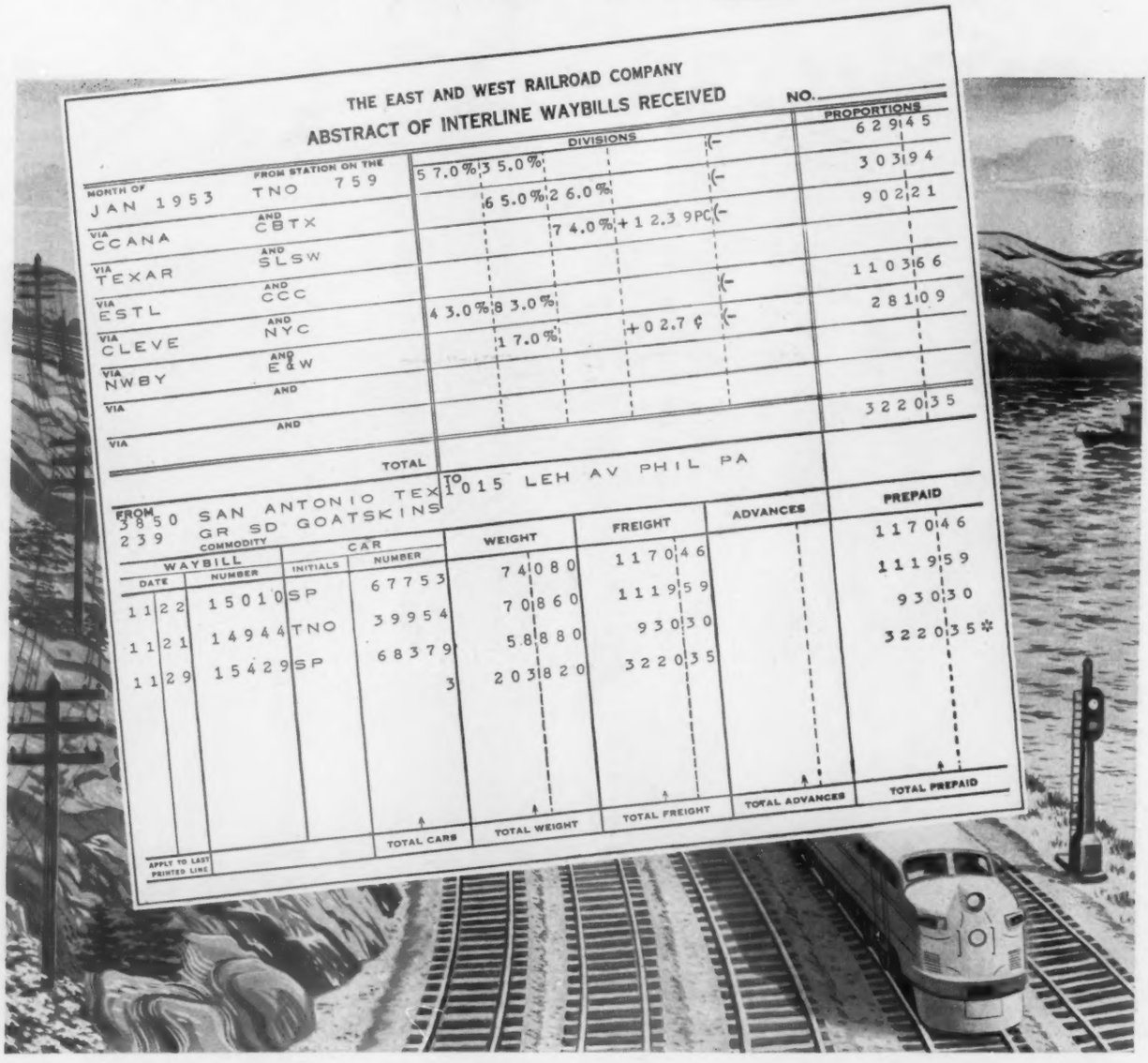
Both on time...

with an assist by TELETYPE

Peak traffic loads are handled safely with a minimum of delay when Teletype is on the job. Providing fast, accurate printed communications, Teletype handles switch lists, block reports, set-out and pick-up reports, diversion orders and reports, manifest and passing reports. Regular message traffic, too, is speeded up with Teletype.

TELETYPE
REG. U.S. PAT. OFF.
CORPORATION
SUBSIDIARY OF
Western Electric Company
INCORPORATED

What's So Unusual About This Abstract?



First of all, it was printed in just a few seconds — from verified divisions.

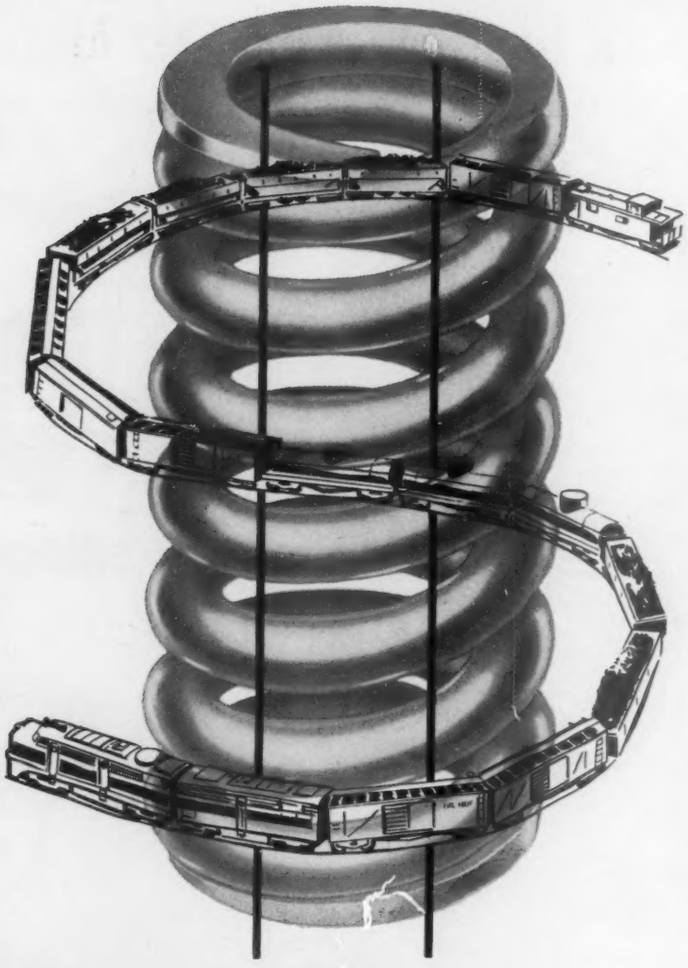
But more than that, the calculating and balancing were done automatically. And by using master apportionment cards, divisions were applied automatically too, practically eliminating statements of differences. These *same* cards are used whenever the same freight movement occurs. No manual transcription or extension is necessary.

Behind all this is the versatile IBM punched card. Complex division formulas quickly give way to it, permitting proportions of revenue to be computed automatically on high speed equipment.

By permitting the interchangeability of cards between carriers, IBM Electronic and Electric Machines create important savings while providing all necessary records.

IBM
REG. U.S. PAT. OFF.

INTERNATIONAL BUSINESS MACHINES
590 Madison Avenue, New York 22, N. Y.



why these long travel springs

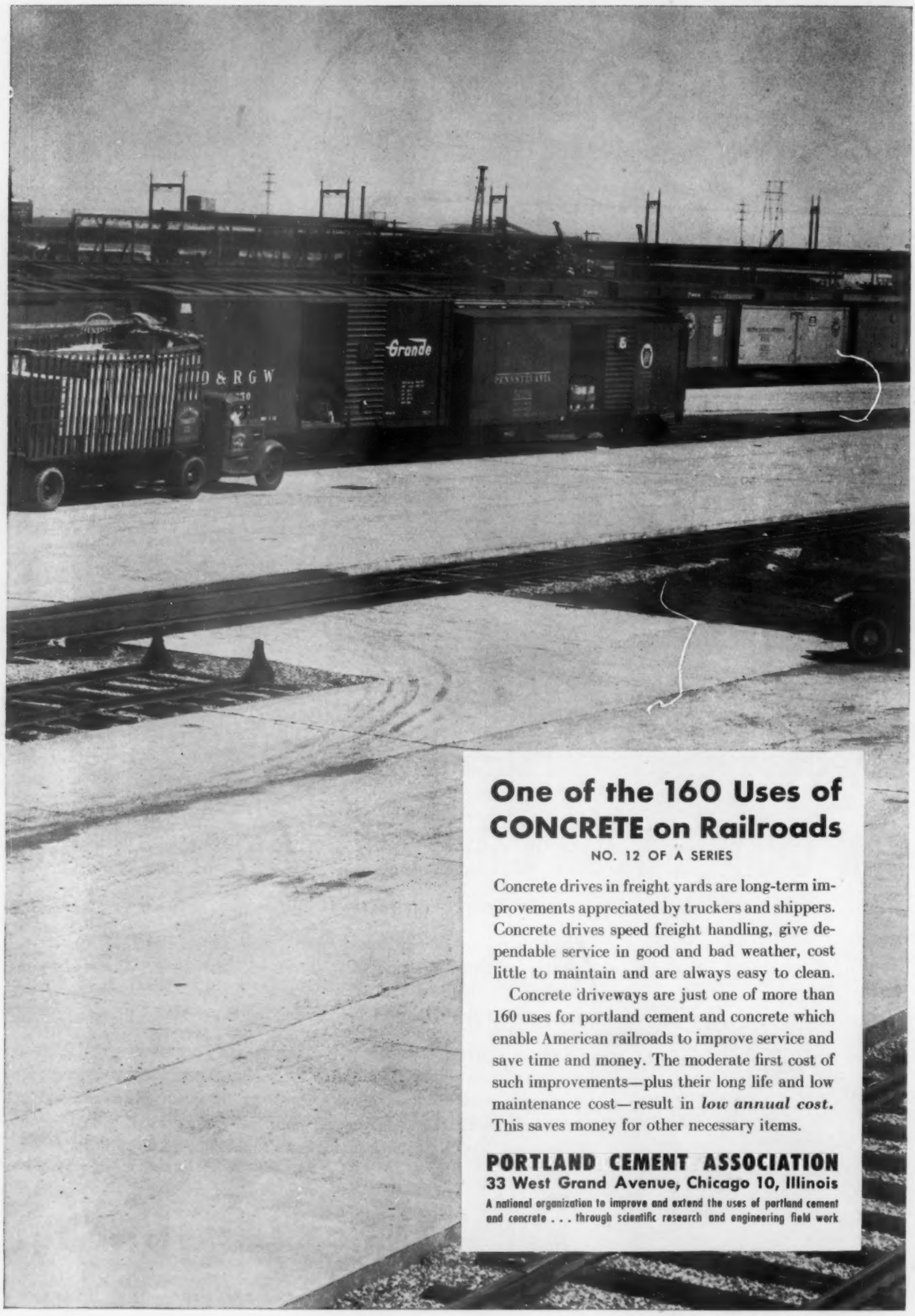
CAN CHANGE YOUR CAR LOADS INTO PAY-LOADS

Experienced railroaders know from actual experience that long travel springs help increase operating profits by decreasing claims for lading damage. These heavy coil springs are scientifically designed to dampen and cushion heavy shocks before they ever get really started.

"Railway" Springs also cut maintenance costs of your roadbed and lengthen the life of your rolling stock. All of these benefits are the direct result of a product that's backed by years of experience in spring manufacture. Next time you need springs, call your Alco sales representative in Chicago, Cleveland, New York, Richmond, San Francisco, St. Louis, St. Paul.

Railway Steel-Spring Division

AMERICAN LOCOMOTIVE COMPANY



One of the 160 Uses of CONCRETE on Railroads

NO. 12 OF A SERIES

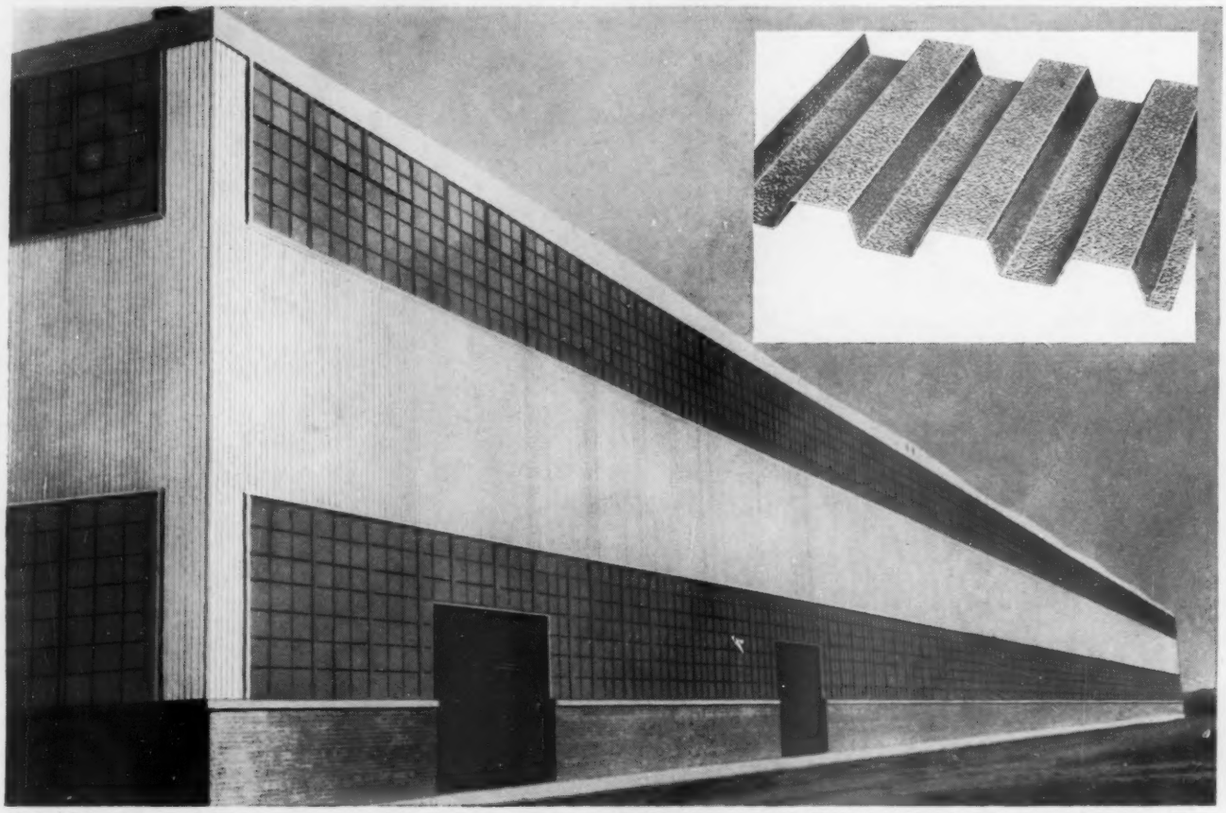
Concrete drives in freight yards are long-term improvements appreciated by truckers and shippers. Concrete drives speed freight handling, give dependable service in good and bad weather, cost little to maintain and are always easy to clean.

Concrete driveways are just one of more than 160 uses for portland cement and concrete which enable American railroads to improve service and save time and money. The moderate first cost of such improvements—plus their long life and low maintenance cost—result in ***low annual cost.*** This saves money for other necessary items.

PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

NOW...ALUMINUM INDUSTRIAL SIDING WITH MODERN ARCHITECTURAL BEAUTY!



General Contractors:
Turner Construction Co., Struck Construction Co.

One of the many large units at "Appliance Park," Buechel, Ky., where General Electric will consolidate its major appliance manufacturing. This new siding used throughout.

Here's the siding material industry has long sought! Sharp vertical lines in modern design, with all the advantages of rustproof, corrosion-resistant aluminum...low applied cost, long life, low maintenance (no painting), strength with light weight, heat-reflection that improves interior comfort summer and winter. No wonder this is what General Electric chose for siding throughout its vast new Appliance Park project. It ranks tops with architects, engineers, maintenance men and purchasing agents!

• • •

Call Reynolds for literature and technical assistance on this new siding. For a material that performs as both roofing and siding, ask about Industrial Corrugated. Offices listed under "Building Materials" in classified phone books of principal cities. Or write
Reynolds Metals Company, Building Products Division, 2040 South Ninth Street, Louisville 1, Kentucky.

SPECIFICATIONS:

METAL THICKNESS: 0.032" (22 U. S. Std. Ga.).
FINISH: Stipple-embossed.
LENGTHS: 5′, 5½′, 6′, 6½′ and so on to 13½′; also 13′ 10". Special lengths to order.
WIDTH: Over-all width 33⅝", nominal coverage 32".
RIBS: Pitch 4" center to center, depth 1".
WEIGHT: 59 lbs. per 100 square feet.

Military demands for aluminum reduce supply, but Reynolds is rapidly expanding production. Rated orders receive priority handling.

REYNOLDS *Lifetime* ALUMINUM RIBBED-EMBOSSED SIDING

SEE "MISTER PEEPERS," starring Wally Cox, Sundays, NBC Television Network. **HEAR "Fibber McGee and Molly,"** Tuesdays, NBC Radio Network.


NEW YORK CE

Boston & Albany Boosts Efficiency 25% With Help of Alco-GE Diesel-Electrics

The Boston & Albany district of the New York Central System has increased train speeds and operating efficiency 25% through dieselization. Alco-GE locomotives comprise 72% of this road's assigned motive power.

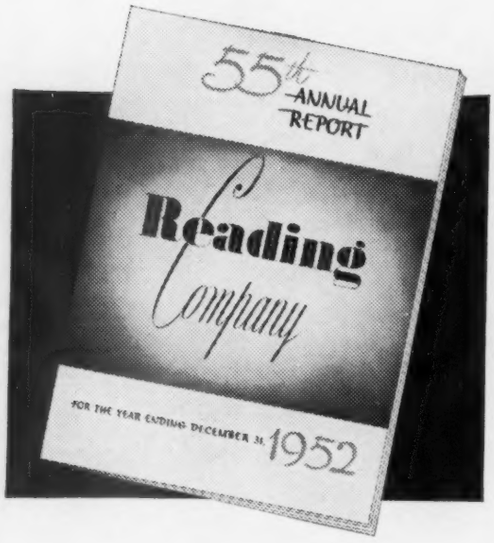
The B&A completed dieselization in Feb., 1951 as an answer to some of the steepest grades of the entire New York Central System. Paced by sturdy Alco-GE locomotives, this dieselization has meant, for example, a 60% increase in tonnage limits for the haul over the 1.65% Washington grade between Chester and North Adams Junction, Mass. Helper service has been eliminated, and haulage time reduced.

Alco-GE diesel-electrics have proved their worth on every B & A haulage job . . . from rugged switching chores to the crack passenger trains and fast symbol freights . . . modern motive power that symbolizes the progressiveness of this fine railroad.

113-308

AMERICAN LOCOMOTIVE
and
GENERAL ELECTRIC

READING COMPANY reports for 1952



Revenues for the year were $131,954,486. Earnings per share on Common Stock were $6.34.

Dividends of $2.00 per share were paid on both the Preferred and Common Stocks, making the 47th consecutive year in which dividends have been paid on all classes of stock.

A total of $27,032,582 was invested in improvements, of which $22,161,276 was for equipment and $4,871,306 was for improvements in road property.

Operating expenses decreased 2% for the year and the operating ratio was reduced to 77.41%.

Industries located on the Reading during the last two years are expected to produce 40,000 carloads of revenue freight annually.

President

REVENUES, EXPENSES and EARNINGS for 1952

(*Condensed Earnings Report*)

	1952	1951	INCREASE OR DECREASE
REVENUES FROM OPERATION—Transportation of freight, passengers, mail, express, and all other	$131,954,486	$131,177,889	$ 776,597–I
EXPENSES OF OPERATION—Cost of transportation service, maintenance and depreciation of road facilities and equipment, and solicitation of traffic	102,152,097	104,062,934	1,910,837–D
LEAVING AS NET REVENUE FROM OPERATIONS	$ 29,802,389	$ 27,114,955	$2,687,434–I
TAX ACCRUALS—Federal and state income, railroad retirement, unemployment insurance, and other taxes applicable to railway operations	$ 15,310,544	$ 15,042,883	$ 267,661–I
NET RECEIPTS FROM RENT OF EQUIPMENT AND JOINTLY USED RAILWAY FACILITIES	$ 1,274,981	1,246,925	28,056–I
NET RAILWAY OPERATING INCOME	$ 15,766,826	$ 13,318,997	$2,447,829–I
OTHER INCOME—Dividends, interest and rentals, less miscellaneous deductions	$ 1,761,369	$ 1,769,169	$ 4,800–D
GROSS INCOME AVAILABLE FOR FIXED CHARGES	$ 17,531,195	$ 15,088,166	$2,443,029–I
FIXED CHARGES—Interest on funded and unfunded debt, rent for leased roads, and amortization of discount on funded debt	$ 5,854,888	$ 5,555,958	$ 298,930–I
NET INCOME AVAILABLE FOR DIVIDENDS, CAPITAL EXPENDITURES, AND OTHER CORPORATE PURPOSES	$ 11,676,307	$ 9,532,208	$2,144,099–I

THE ENGINEER'S REPORT

DATA

PRODUCT Calol Filter Coat

UNITS Air filters on diesel locomotive engines and car bodies

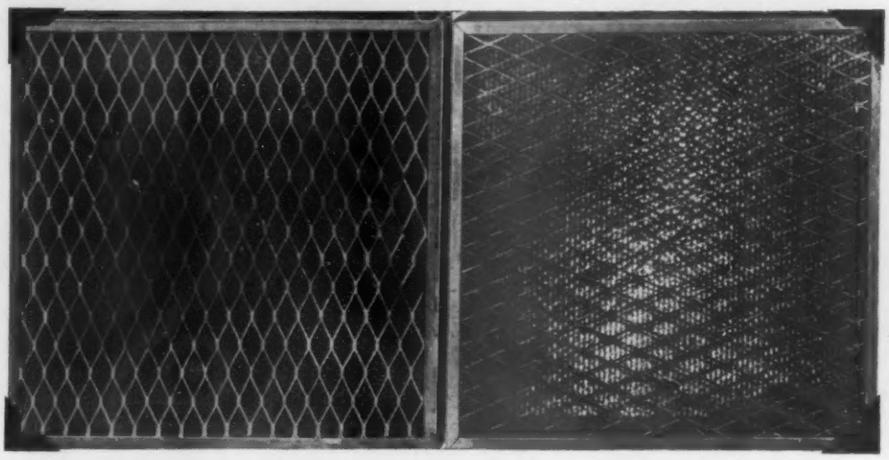
CONDITIONS Heavy dust due to rail-sanding on grades

LOCATION Roseville, Calif.-Sparks, Nev.

FIRM Southern Pacific Co.

New adhesive sets air filter efficiency standards!

CALOL FILTER COAT, a new type of adhesive tested on impingement-type air filters of 40 Southern Pacific diesel locomotives, allowed extension of normal filter servicing periods at least two times without appreciable loss of dust-catching efficiency. The car-body filter (immediate right) and engine air-intake filter, shown here, were photographed after 6400 miles of continuous use. Note that Calol Filter Coat is still evenly distributed, surfaces are still "wet" for maximum dust-catching efficiency and screens are still open enough to admit light through them. All Calol Filter Coat remained in place so that the use of drip pans was unnecessary.

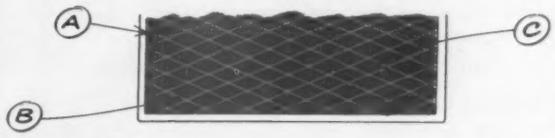


FREE CATALOG: "How to Save Money on Equipment Operation," a new booklet full of valuable information, will be sent you on request to Standard Oil Company of California, 225 Bush St., San Francisco, Calif.

CALOL

TRADEMARK "CALOL" REG. U.S. PAT. OFF.

How Calol Filter Coat Ups Efficiency of Impingement-type Air Filters



A. Will not drip off or flow from screens—full amount applied remains over the entire service period with sustained high-filtering efficiency at all ambient temperatures. Easily applied by conventional methods.

B. Has high wicking ability—quickly soaks through dirt particles in all air velocities and extreme dust concentrations.

C. No loss from contact with rain or snow, filters are easily cleaned with usual hot-water-detergent solutions.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso
THE CALIFORNIA OIL COMPANY, Barber, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado

MECO
MONEY-SAVING PRODUCTS

Meco Type C Rail Layer, which is light in weight and easy to handle, does all the heavy work of lifting and placing when relaying rail. It rides one rail of the track and relays the opposite rail.

The *Meco Set-Off and Transfer Device* then transfers the Meco to the newly laid rail and it lays the other rail. The same device sets the Rail Layer off the track to clear traffic.

One *Meco Rail Layer* and a crew of 3 or 4 men lay conventional length rails. Long rails are handled by 2 *Mecos* and 5 or 6 men. Mile-long "RIBBONRAIL" is laid by 2 or more *Meco Rail Layers* and 6 or more men.

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RAILWAY EXCHANGE BUILDING • CHICAGO 4, ILLINOIS

RYD-IN AUTOMATIC COUPLER for securely coupling motor cars and trailers.

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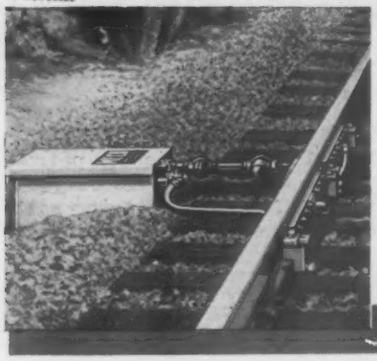
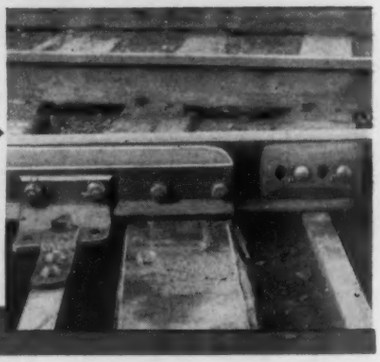


MECO CURVE RAIL LUBRICATOR — The *Meco Curve Rail Lubricator* greatly decreases wheel flange and rail friction on curves, thus increasing the life of the high rail, reduces wear on wheel flanges, and makes higher speeds possible with safety.

MACK SWITCHPOINT PROTECTOR — Prolongs the life of switch rails 4 to 5 times with the first application. When the Protector wears down, it is removed and reversed, and prolongs switch rail life another 4 to 5 times — thus saving the cost of 8 or 10 switch rails and the labor cost of removing and replacing them as well as the cost of the many delays otherwise encountered because of frequent replacement of worn out switch rails.



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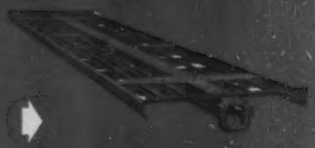
THERE'S A NEW PRECISION IN FREIGHT CAR CONSTRUCTION

THE RACE IS TO THE SWIFT... In today's race to step up schedules, rush cars through the yards and maintain higher speeds on the line, the job is to *deliver the goods faster!*

...THE BATTLE TO THE STRONG! In order to set *and maintain* such a pace, railroads must keep construction techniques abreast of schedules. *Cars must* be as well constructed to *withstand* these new speeds as motive power is to *deliver* them!

International Steel Company—by diligent research and faithful adherence to proper design and construction techniques—has developed the necessary ingredient to successfully meet today's problems—precision construction based on true conceptions.

THE INTERNATIONAL UNDERFRAME



A much sturdier underframe incorporating a maximum utilization of material section with minimum weight.

THE ALL-PURPOSE BULK-LADING DOOR

Requires no inside grain door! . . . and has an access door for loading, inspection and sampling. *Positive retainment on the car structure.*

ALL-WELDED CAR SIDES

Delivered *ready to assemble,* to car owners who assemble their own cars. *Maximum welded attachment to the side plate and side sill upper elements.*

INTERNATIONAL STEEL COMPANY RAILWAY DIVISION

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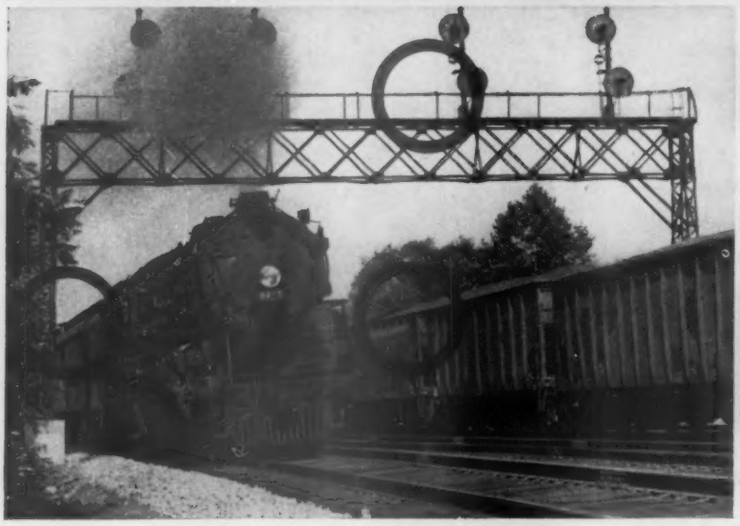
Available In All Colors, Aluminum and White



Request Your FREE Copy of The RUST-OLEUM Railroad Catalog Now!

Make Your Own Hose Lines

AEROQUIP HOSE AND FITTINGS ARE MATCHED FOR GUARANTEED PERFORMANCE

●No skill or special training is required to assemble Aeroquip Flexible Hose Lines by hand *in a matter of minutes!* YOU CUT COSTS because Aeroquip fittings are detachable and may be used again and again. YOU REDUCE INVENTORY because with Aeroquip bulk hose and a few fittings you can fill practically all your hose line requirements. YOU REDUCE DOWNTIME because with Aeroquip on hand, quick hose line replacements are available at all times.

Cut hose to length with hacksaw; screw into socket.

Oil nipple and inside of hose liberally.

Screw nipple into socket and hose.

Install fitting on other end; hose line is ready for use.

Aeroquip

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AEROQUIP PRODUCTS ARE FULLY PROTECTED BY PATENTS IN U.S.A. AND ABROAD

REVENUE TRAFFIC KEEPS ROLLING. Rechanneling of Prairie Dog Creek proceeded without interrupting railroad schedules as Contractor Poppe's two International crawlers teamed up to excavate 845 cubic yards of sand daily for the new creek bed.

Keeps Creek from Main Line

International Crawlers move Prairie Dog Creek 200 feet from Rock Island's main line in 13 days

When rip-rap failed to keep Prairie Dog Creek from eating into the Rock Island roadbed one mile west of Jennings, Kansas, the creek was rechanneled for 1,000 feet and moved 200 feet from the tracks in just 13 working days.

Poppe Construction Company handled the rechanneling project for the railroad and used an International TD-18A with a six-yard scraper and an International TD-14 with dozer to move 11,000 cubic yards of sand excavated for the new 40-foot wide, 8-foot deep creek bed.

Contractor Art Poppe says: *"My TD-14 on this job is a 1946 model and still going strong. It worked 4,500 hours on some mighty tough jobs before needing an overhaul. My TD-18A has to pull the scraper with no wheel support at times and that takes real power, but this crawler really is loaded with it. I find all my Internationals are designed and built to last."*

Call in your International Industrial Distributor before you buy that next piece of maintenance-of-way equipment. Get the details on why you will get greater work dividends from International "Power That Pays."

INTERNATIONAL HARVESTER COMPANY
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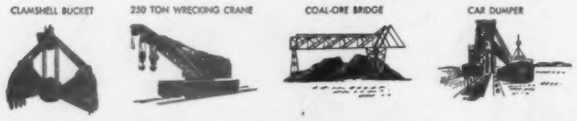
NEW ARITHMETIC
FOR COST-MINDED EXECUTIVES

1 + 1 = 1 BROWNHOIST
(SWITCH ENGINE) (LOCOMOTIVE-CRANE) DIESEL ELECTRIC LOCOMOTIVE-CRANE

Many railroads, steel mills and manufacturing plants have long been familiar with the powerful, efficient performance of Brownhoist Diesel Electric Locomotive-Cranes in handling bulk materials with magnet, hook or bucket. Brownhoist Cranes also perform equally well as switch engines because they are built with a specially designed travel generator, motor and axle reduction unit — the same equipment used in modern switching locomotives to provide high tractive power and rapid acceleration. These two dependable pieces of equipment in one husky unit mean greater versatility and economy of operation.

Brownhoist Cranes save you man hours, production time and money. The patented Monitor Type Cab and Clear-Vision Boom give the operator unlimited visibility in all directions and help him turn out a greater volume of work in less time. Sound, rugged construction plus a simplified mechanism and easy accessibility to all moving parts help keep maintenance and repair costs low.

Brownhoist Cranes are built in capacities from 25 tons to 80 tons for virtually every heavy duty materials handling operation. For complete information, consult your nearest Brownhoist representative or write us today.



INDUSTRIAL BROWNHOIST CORPORATION • BAY CITY, MICHIGAN

DISTRICT OFFICES: New York, Philadelphia, Cleveland, San Francisco, Chicago; Canadian Brownhoist, Ltd., Montreal, Quebec • AGENCIES: Detroit, Birmingham, Houston, Los Angeles

BROWNHOIST
BUILDS BETTER CRANES

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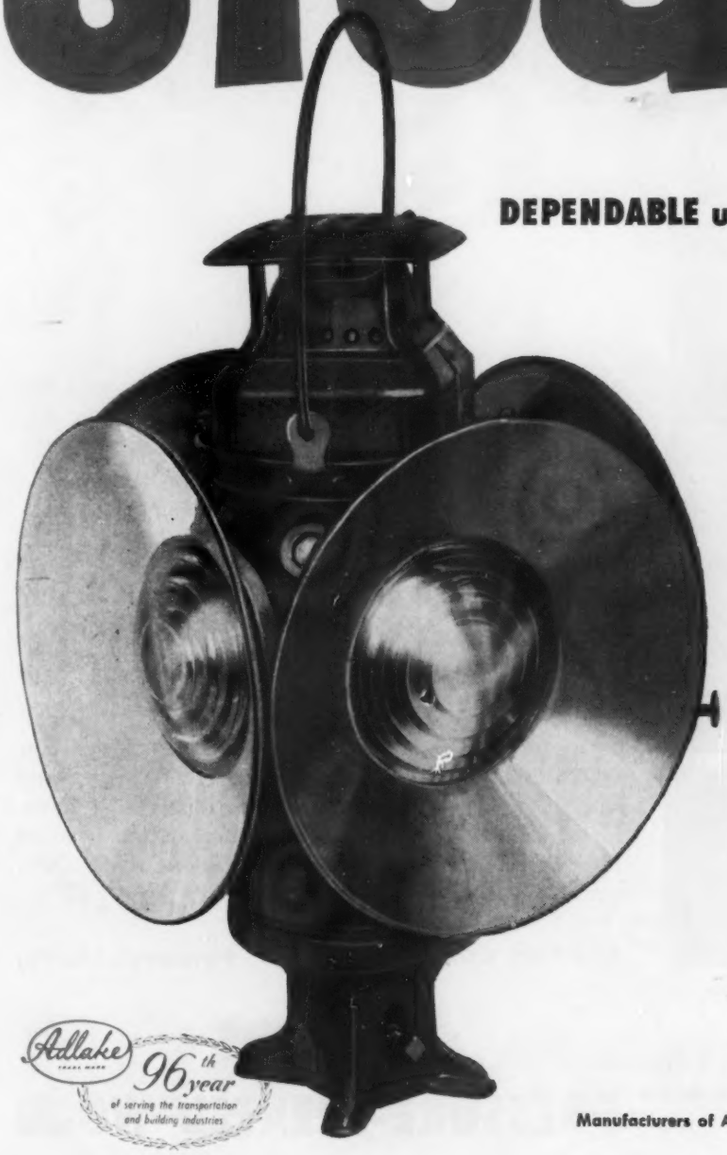
sure and steady

DEPENDABLE UNDER ALL OPERATING CONDITIONS!



Adlake OIL SWITCH LAMPS

Where safety is concerned, there is no such thing as "dependable enough"... there is either *complete* dependability or no dependability at all!

ADLAKE Oil Switch Lamps can be counted on under every operating condition. ADLAKE "balanced draft" ventilation has proved its merits by use in the most difficult installations for many years, and in many parts of the world...and it will assure you, too, of trouble-free performance.

Write for complete information on dependable, money-saving ADLAKE Lamps and Lanterns today. Address 1150 N. Michigan, Elkhart, Indiana.

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Ask these roads about the convenience of Koppers Service on car lumber

THE PENNSYLVANIA
THE BOSTON & MAINE
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THE PITTSBURGH & WEST VIRGINIA
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• Maximum saving from the use of pressure-treated car lumber depends on careful planning. Koppers service can help you to match your needs with supply, at the right time in the right place.

Typical of the facilities to service car lumber requirements are the many Koppers plants equipped for pressure treatment not only with creosote, but also with other approved preservatives which are particularly suited to car lumber applications. The availability of a complete range of preservatives insures you of just the right treatment for each of your lumber applications.

A careful study of your shop locations, lumber stocks and buying practices may indicate important additional savings in the use of car lumber. Such an analysis could be furnished without obligation by Koppers Technical Department. Please address your request to Mr. Ralph Bescher, Wood Preserving Division, Koppers Company, Inc., Orrville, Ohio.

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CLOSE THE DOOR ON DIESEL STARTING WORRIES!

That's good advice... and easy to take. Just make sure you've got Goulds in the battery compartment . . . and that the Gould Plus-Performance Plan keeps them . . . or any other lead-acid batteries you might be using . . . in top-capacity condition at all times.

Here's double-barreled assurance of engine availability, extended battery service and elimination of diesel starting worries. It will pay you to write for full information on Gould Batteries and the Plus-Performance Plan.

GOULD PLUS-PERFORMANCE PLAN—A library of technical information that tells you how to select, charge, maintain and determine the condition of lead-acid batteries. It's free. Write Gould Battery Information Headquarters for details.

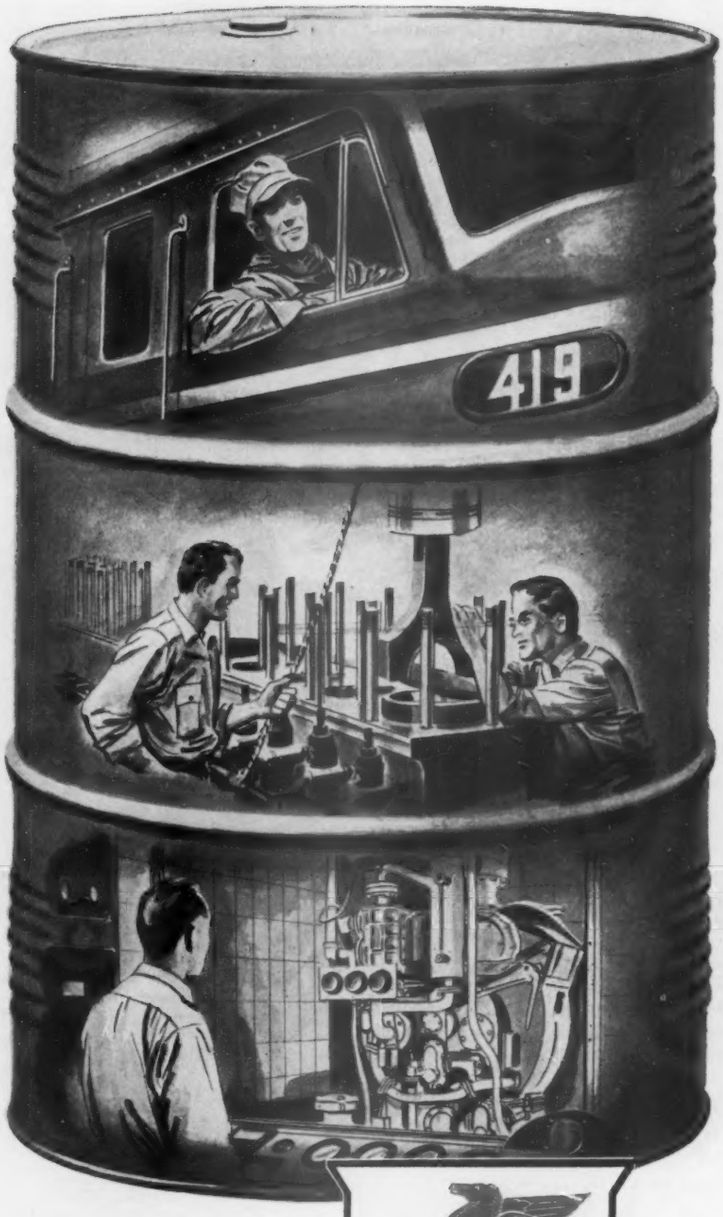
Gould
"Z" Plate Batteries
for Diesel Starting

GOULD *Industrial Batteries*

GOULD-NATIONAL BATTERIES, INC., TRENTON 7, N. J.

Always Use Gould-National Automobile and Truck Batteries

All 3 Had A Hand In This Oil...



Socony-Vacuum worked closely with operators and builders to create lubricating oil of unsurpassed quality!

Today's Diesel locomotives, with their higher operating speeds, temperatures and pressures, present many complex problems which—experience has shown—can be solved only through cooperation of operator, builder and oil supplier. For many years now, Socony-Vacuum has been an integral part of this cooperative effort.

As a result of this experience—plus our own exhaustive field and laboratory evaluations—we now have what we believe to be the finest Diesel lubricating oil yet developed—Gargoyle D.T.E. 4DR—an oil with highly effective anti-foaming action, unusually strong resistance to oxidation, exceptional detergency.

Our long experience—our proved products—are available to help solve *your* problems. Why not call us?

Railroad Lubricants

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Correct Lubrication

WORLD'S GREATEST LUBRICATION KNOWLEDGE AND ENGINEERING SERVICE

SOCONY-VACUUM OIL COMPANY, INC., Railroad Division, 26 Broadway, New York 4, N. Y.

World's largest freight-passenger terminal system uses own telephone system

The Terminal Railroad Association of St. Louis provides fast, two-way telephone contact throughout its scattered terminal yards and buildings with a P-A-X Business Telephone System.

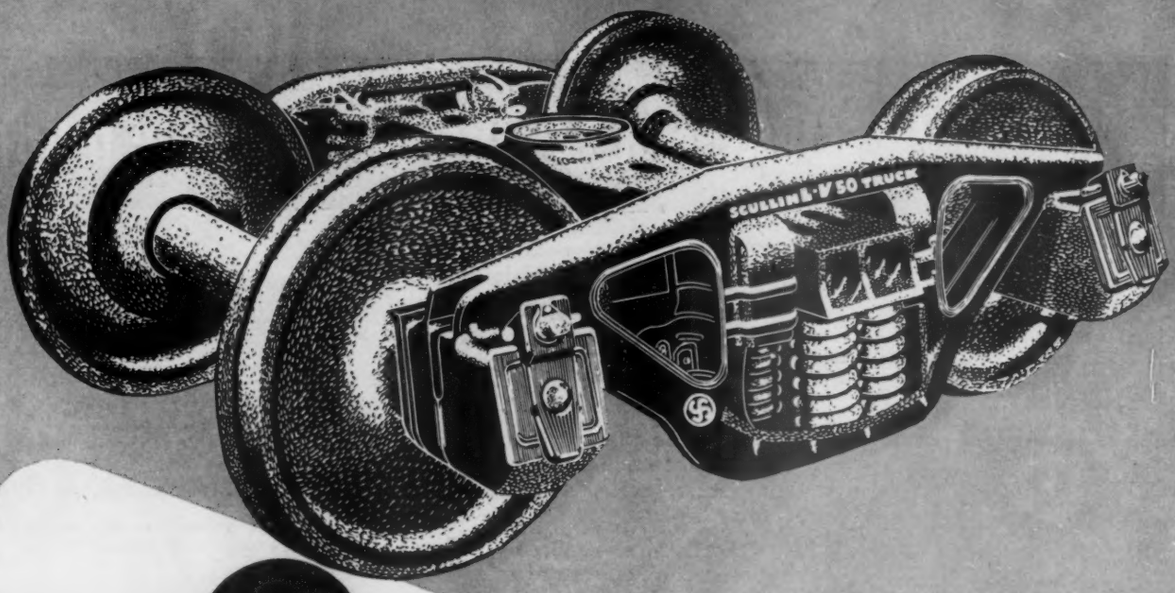
"We rely upon our P-A-X System for coordination of all our departments . . . this calls for heavy usage," according to E. B. McCormick, Manager of Telegraph and Telephone Department. "Our favorable experience . . . low operating and maintenance costs, prompts us to recommend P-A-X as the most efficient, unattended private automatic telephone system any company could purchase," he reports.

St. Louis Terminal serves 18 railroads.

"We installed a 50-line P-A-X in 1918. After it provided dependable service, 24 hours a day, for 33 years, we expanded the system to serve 75 lines in 1951."

E. B. McCormick checks 75-line automatic P-A-X switchboard.

This P-A-X story is not an isolated case. A similar history of service and control is recorded by the Kansas City Terminal Railroad Company. By coincidence, both terminals installed P-A-X Business Telephone Systems about the same time, and expanded them about the same time decades later.



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50
CUSHIONED MOTION

SCULLIN V TRUCKS

THE SMOOTHEST TRAFFIC BUILDERS BETWEEN LCL AND YOUR RAILS

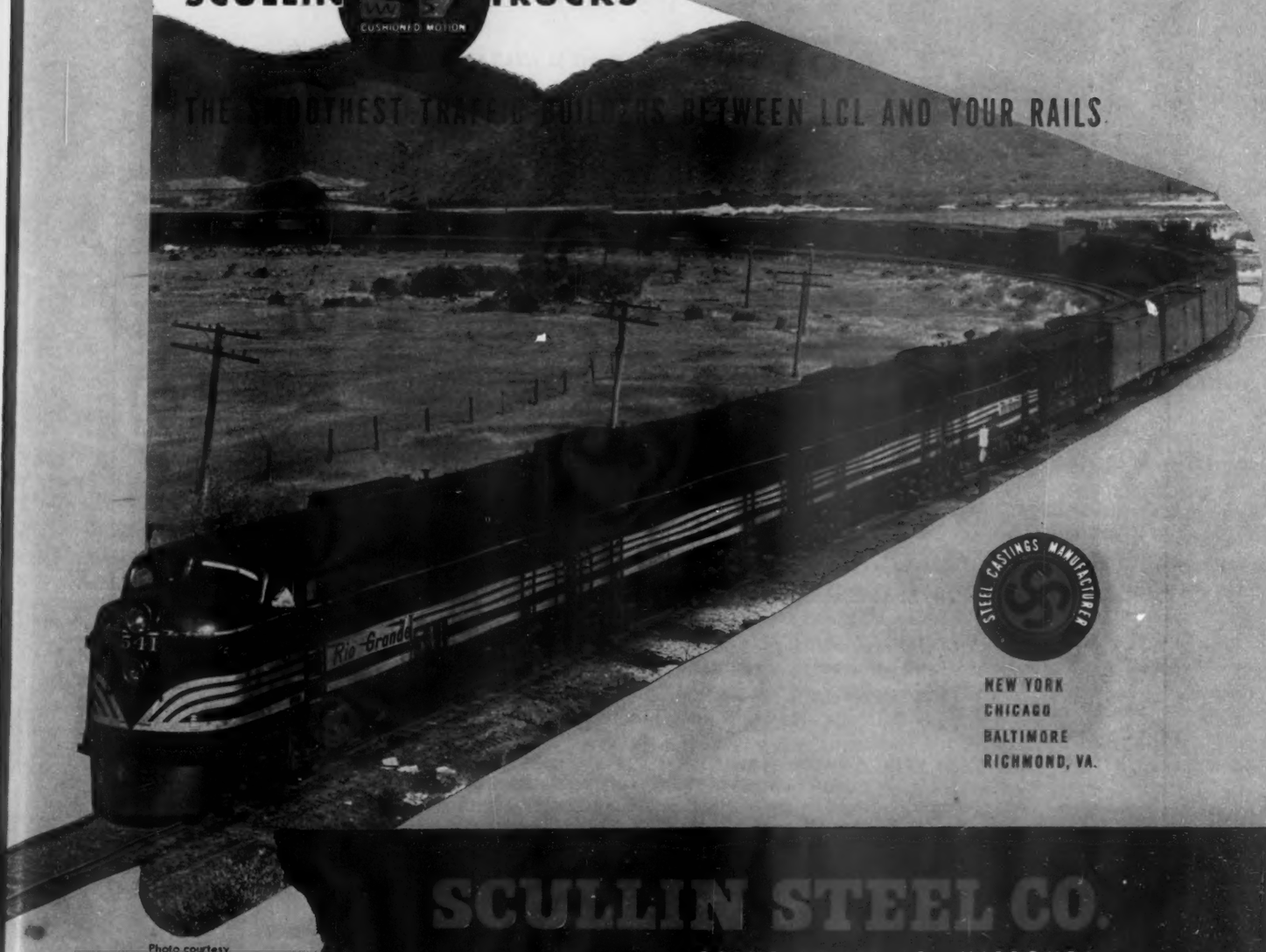

Photo courtesy
Denver & Rio Grande Western Railroad

STEEL CASTINGS MANUFACTURER

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SCULLIN STEEL CO.

SAINT LOUIS 10, MISSOURI

Provides twice as much paint in one application . . . Increases paint shop capacity . . . Keeps equipment on the haul for more pay hours

YOU'LL get more pay hours from your freight rolling stock when you paint them with Pittsburgh's Hot-Spray CARHIDE. This latest development in famous CARHIDE railway finishes provides the equivalent of *two coats of paint applied cold with a single application* . . . puts cars into service more quickly . . . keeps them looking better longer.

● **In Hot-Spray CARHIDE,** heat is used in place of conventional thinners to adjust viscosity to weather and temperature conditions. No matter when you paint, this new type of coating goes on more uniformly, has better adhesion, dries quickly to a higher gloss, and gives you tougher, longer-lasting protection.

● **Hot-Spray CARHIDE** can be applied with approximately half the usual air pressure. This reduces the amount of "fog" in the paint shop—more of the solid material reaches the surface being painted. There is less paint sag—more paint is applied with less labor. As there is much less thinner to evaporate from the paint, imperfections from shrinkage are greatly decreased.

● **Refinishing is speeded** as half the time needed to apply two coats, as well as drying time between coats, is eliminated. Shop capacity is practically doubled without increasing space, manpower or equipment.

● **We'll be glad** to give you further details about this new labor-saving freight car paint. A wire, phone call or letter from you may save time and money in your shop, traffic and operating departments.

PITTSBURGH PLATE GLASS CO., Industrial Paint Div., Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N. J.; Springdale, Pa.; Atlanta, Ga.; Houston, Texas; Los Angeles, Calif.; Portland, Ore. Ditzler Color Div., Detroit, Michigan. The Thresher Paint & Varnish Co., Dayton, Ohio. Forbes Finishes Division, Cleveland, Ohio. M. B. Suydam Div., Pittsburgh, Pa.

PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

A Specially Designed

OAKITE MECHANIZED cost-cutting METHOD for safely cleaning Roller Bearings

No danger of RUST! Completely SAFE! Saves TIME and work! Drastically LOWERS costs! Assures THOROUGH cleaning!

YOU do the whole job MECHANICALLY with the Oakite Bearing-Cleaning Unit. Build it in your own shop. By employing a homogenized OAKITE SOLVENT DETERGENT in the equipment, you now can completely remove all lubricants and grease from journal box ROLLER BEARINGS in about 5 minutes. On larger bearings, such as main generator bearings on Diesel locomotives, the average cleaning time is 15 minutes.

Five Main Advantages

Here are the main advantages of this NEW MECHANIZED Oakite method: (1) There is no danger of rust; (2) the OAKITE SOLVENT DETERGENT is SAFE to metals, SAFE to personnel; (3) You save time; (4) You drastically cut cost of doing the job; (5) Bearings are thoroughly cleaned for accurate inspection.

Find Out About This New Method Now

Let us help and work with you in setting up procedures and the economically-built equipment to handle this ROLLER BEARING cleaning operation on a low-cost, efficient MECHANIZED basis. Your inquiries invited.

THE OAKITE BEARING-CLEANING UNIT

provides a brand NEW, successful method for cleaning passenger car, freight car and locomotive ROLLER BEARINGS on a production basis. This Oakite Unit can be constructed in your shop with readily available materials.

OAKITE PRODUCTS, INC., 46 Rector Street, New York 6, N. Y.

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OAKITE RAILWAY DIVISION

Benchmarks and Yardsticks

CAMERON HAWLEY, THE AUTHOR of a popular novel—"Executive Suite"—about the behavior of business men, spoke recently to a group of publishers. The top men of big business, he reported, are pretty highly civilized people. They are intensive readers of good books, patrons of the arts, and go in deeply for "human relations" and charitable activities.

In fact, said Mr. Hawley, they're almost too good and too agreeable. Businesses weren't built up, according to Mr. Hawley, by so much sweetness and light. They were, in fact, for the most part built up by rather tough fellows who moved directly to their goals and didn't mind doing some shoving to attain what they wanted. Mr. Hawley is afraid that too much "human relations" and "public relations" is likely to give us a type of business leadership which may lack creative power.

Thus the pendulum swings. The present generation of business leaders inherited a lot of ill-will toward business from the behavior of their over-rugged predecessors—and now an observant critic is saying that the reform is going too far. Maybe he is right—things do have a way of swinging to extremes . . . the middle course is not easy.

The question is whether forward drive in a business—imagination and creative energy—is necessarily connected with a surly disposition. Certainly there have been highly successful executives who were pretty tough fellows to get along with—but the question is: Did they succeed because they were crochety, or in spite of it?

One of the biggest and most uniformly successful enterprises in the country—American Telephone & Telegraph—was put together, largely, by Theodore N. Vail—who understood and practiced a half-century ago about all that is known or practiced by the most advanced businesses in "public relations" and "employee relations" today. The policies Mr. Vail pursued for getting employees and the public to like the company certainly didn't thwart its development.

Our guess is that it is the executive's creative imagination, his energy, his commonsense, and his persistence that make what he does a success. If he can combine all of these positive characteristics, he can probably succeed in spite of traits which make him unpopular—but it is the energy and purposiveness which do the trick, not the surliness.

Sweetness and light in a boss are no substitute for energetic furtherance of the primary goals of the business—but orneriness certainly isn't any positive help. It is likely to be tolerated only if effective leaders come only in that form, which they don't—necessarily. Let's not let the pendulum swing too far back in that direction!

J. G. L.

Rate Structure Reform?

This paper is getting, every day, from railroad men, such constructively critical—and challenging—observations as the following:

¶ "We spend all our time watching our railroad competitiors and trying to take business from them while we have little exact and detailed information, and seem to have little curiosity, about who's shipping what by highway, and just how much of this traffic we might get back by concessions in rates and improvement in service, which we could easily afford."

¶ "The railroads used to go in for developmental rates—for instance, cheap rates on fertilizer, where we had to wait years to get our bait back. Nowadays, paralleling us on the highways, are millions of dollars' worth of traffic that we could add to our revenues almost overnight, if we'd make rates on it that our lower costs permit us to make, while still yielding a substantial profit."

Money in More Trains

¶ "Some of us railroad men seem to think we're doing pretty well if we can get enough traffic to run a couple of 125-car trains over the road in a day. We overlook the fact that there's money to be made, also, in running more trains, and not merely in running longer ones."

¶ "If the electric companies—a regulated utility—can make rates to meet the competition of self-service electric supply, why can't the railroads have the same privilege in meeting the competition of the shipper who provides his own transportation? What of it if the law and regulatory policy is against us now? Would this obstacle be able to stand up against popular demand, if we would make known our readiness to provide such service?"

¶ "Some traffic people tell me it isn't what we know but whom we know that gets our freight for us—but I have noticed that that particular sales theory did not save the steam locomotive from being supplanted by the diesel. If you study the market and adapt your service and rates to it, so as to offer a bigger bargain than the other fellow can or does, the chances are you will get the business even if you have halitosis. But you can't make prices or service to get the business unless you know exactly what business your competitor is getting and what he's getting paid. The first step in the solution of a problem is to get at the facts. We do not have the facts about our competition—only opinions."

¶ "There are places where failure of railroads to cooperate for best possible service—perhaps because of the unwillingness of one road to short-haul itself in the interest of quicker delivery to consignee—causes the traffic to leave the rails altogether. No road can be expected to donate business to a rival railroad, but a short-haul is better than no haul at all."

Prices vs. Volume

¶ "We seem to overlook the fact that all 'growth industries' have got that way by constantly bringing down prices wherever a remunerative rise in volume would be confidently expected to follow. The same principle ought to work on the railroads."

¶ "About the fourth section—most of the deep objection to repeal seems to be located in Intermountain territory. We can tell an honest story which would convince most of these objectors but it will take intensive effort, and when are we going to begin? The truckers' objections to repeal are not grounded in the public interest and could be overridden if we could win to our side those whose objections are based only on misunderstanding. This fourth section, along with the 'time lag,' is the really crucial aspect of over-regulation, and we need a comprehensive 'grass roots' campaign on it. Probably the I.C.C. could give us more and faster relief even under the present law—and might do so if we'd ask for it convincingly and insistently."

The foregoing provides only a small sampling of a much larger number of opinions like this which are coming to us daily—orally and in writing. And not from any "radical fringe," but from substantial and responsible railroad men of long experience.

The failure of railroad traffic and revenues to respond proportionately to the country's growth in production and population would be a discouraging trend, if it could be shown that the railroads have lost their intrinsic economic su-

periority. Since they have not lost this superiority, the only possible conclusion is that they have not yet succeeded in adapting themselves to changing circumstances as rapidly as they might. Undoubtedly some of this slowness in adaptation is the direct result of outmoded regulatory restrictions—but is that the sole reason?

Why Not Take the Offensive?

If regulatory backwardness is as much an obstacle as is generally believed, what better way could there be of surmounting this obstacle than of proposing the changes that seem called for—thus putting opponents on the defensive and arousing the self-interest of those who would directly benefit from the proposed changes?

If there are other railroaders who have opinions on this important subject—including those just as "con" as those we have quoted are "pro"—we'd be happy to report them in these pages, with as complete protection of the writer's (or speaker's) identity as he desires. There's evidence of more ferment going on in railroad men's thinking in this area than at any time in thirty years. It's our business to report this significant trend—and we'd appreciate your help to enable us to do a more complete job.

Officer Retirement Plans Still Short of Perfection

If there is any railroad with a retirement program for its officers which is giving perfect satisfaction to both the company and its "retirees," we'd like to hear about it. The financial payments made under these programs vary greatly from company to company. Retirement ages vary from road to road—being usually 65 or 70, or perhaps 70 being reduced to 65 in stages. Retirement at a fixed age is not mandatory on some roads, but it is on others; while, in some cases, retired officers are held on the regular payroll in some consulting or other capacity which gives them a larger income than outright retirement.

The financial problem of retirement arrangements for officer personnel has fallen heavily and acutely on all corporations in recent years for the cogent reason that officers' salaries—in terms of "real income" after taxes—have declined precipitately since the early 1940's. Take the case of the average top-management executive who received a salary of $43,700 in 1939. This same position had an average salary of $59,300 in 1950, but the 1950 salary, after taxes, represented only $18,000 in terms of what this executive drew in 1939—a decrease in "real" pay of 59 per cent.

This example is taken from a recent book* which presents a comprehensive survey of the whole problem of officer retirement. It goes on to record that the average "middle-management" salary increased from $10,500 in 1939 to $15,200 in 1950—but, in terms of purchasing power after taxes, this average "middle-management" man was getting in 1950 only $6,300 in 1939 dollars. His "real" salary, that is, had declined 45 per cent.

It used to be not only possible but easy for a corporate officer to lay aside enough to keep him in comparative comfort in his old age. This is no longer easy—or, if possible at all, can be done only by rigorous economy and systematic planning by the individual himself—which latter course, if earnestly pursued, might sometimes detract from his efficiency on the job.

Other Aspects Involved

Author Hall does not, however, limit himself to the financial aspects of the retirement problem—he also gets into the question of whether companies permit retired officers to continue in other jobs, and what the pros and cons of this practice are. Perhaps most important of all, however, he reports extensively on how retired men get along after retirement—and here the evidence is far from comforting. Statistics were gathered on over 100 retired executives and here is how they were rated:

	During First Year of Retirement	After First Year
Very unhappy	20%	10%
Fairly unhappy	40%	25%
Happy	30%	50%
Very happy	10%	15%

Many factors entered into the degree of satisfaction or lack of it—but the principal causes of dissatisfaction in practically all cases could be traced back to inadequate advance planning. The unhappy "retiree" was so largely because he had not planned ahead—either financially or for some activity which would hold his interest. Author Hall believes, from the evidence he found, that most companies would do well to provide systematic and periodic counseling of officer personnel about their retirement plans, beginning at about age 55 and repeated at five-year intervals.

This is a valuable and stimulating book for all corporate officers—both from its suggestions as to company policy on this most important subject, and for the help it will give the reader himself in making his own plans for the inevitable day when he must forswear his customary activities and responsibilities.

*"Some Observations on Executive Retirement," by Harold R. Hall. Published by Division of Research, Harvard School of Business Administration, Boston.

A.R.E.A. Program and Engineering Section

The annual convention of the American Railway Engineering Association is, symbolically speaking, a milepost of progress in the direction of the ultimate goal of all railway engineering officers — standards and practices of construction and maintenance which will produce optimum results in efficiency and effectiveness. At this convention each year, the progress of the past 12 months, as achieved primarily through research, committee work and individual effort, is brought into focus through the medium of reports and addresses. In recognition of the importance of the A.R.E.A. convention, to be held this year on March 17-19, *Railway Age* presents in the following pages a program of the meeting, several articles on subjects of particular interest to engineering officers, and descriptions of a large selection of new or improved materials, devices and machines applicable for use in repairing or constructing railway properties.

WHAT'S SCHEDULED FOR

"Engineering Week" at Chicago

Charles J. Geyer
President, A.R.E.A.

A.R.E.A. annual meeting will report year's progress toward better construction and maintenance practices

During the week of March 16 railway engineering and maintenance officers will take their yearly "inventory" of current progress in the methods, equipment and standards involved in the construction and maintenance of the railroads' fixed properties. This will be done through the medium of the annual convention of the American Railway Engineering Association, to be held March 17-19 at the Palmer House, Chicago. In addition to the presentation of reports of the association's 22 standing committees and one special committee, the business sessions will include addresses on a variety of subjects of current interest, including results of some of the more outstanding research projects being sponsored by the association. Highlight of the meeting from a social standpoint will be the annual luncheon on Wednesday, March 18.

TUESDAY, MARCH 17

Opening Session—9:45 to 12:15
Grand Ballroom

Address by C. J. Geyer, president
Report of N. D. Howard, secretary
Report of A. B. Hillman, treasurer
Greetings from the Signal Section, A.A.R., R. W. Troth
Greetings from the Electrical Section, A.A.R., C. A. Williamson
Address by J. H. Aydelott, vice-president, Operations and Maintenance Department, A.A.R., on "Planning Is Always In Season"
Address by G. M. Magee, director of engineering research, Engineering division, A.A.R.,—"Research Review"
Reports of Committees on
- Yards and Terminals
- Economics of Railway Location and Operation—Address by Dr. L. K. Sillcox, vice-chairman of board, New York Air Brake Company, on "Improved Transit Time for Freight Shipments"

Afternoon Session—2:00 to 4:45
Grand Ballroom

Reports of Committees on
- Waterway and Harbors
- Highways
- Cooperative Relations with Universities—Address by G. W. Eshbach, dean, Northwestern Technological Institute, on "The Manpower Situation"
- Contract Forms—Address by W. R. Swatosh, assistant to superintendent of construction, Erie, on "Two Essentials of Engineering Science—Mathematics and Agreements"
- Records and Accounts
- Water, Oil and Sanitation Services

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WEDNESDAY, MARCH 18

Morning Session—9:00 to 12:00
Red Lacquer Room

Reports of Committees on
- Wood Bridges and Trestles
- Clearances
- Waterproofing—Address by J. B. Blackburn, research engineer, Engineering Experiment Station, Purdue University, on "Tests on Waterproofing Coatings for Concrete Surfaces"
- Impact and Bridge Stresses
- Masonry—Address by W. J. Eney, head of Department of Civil Engineering and Mechanics, Lehigh University, on "Repeated Loading Tests on Prestressed Concrete Beams"
- Iron and Steel Structures

Association Luncheon—12 Noon
Grand Ballroom

Address by Dr. Francis Gaines, president, Washington and Lee University, on "Hand and Spirit"

Afternoon Session—2:30 to 5:15
Red Lacquer Room

Reports of Committees on
- Wood Preservation—Address by Dr. Walter Buehler, technologist, wood preservation, School of Forestry, University of Florida, on "Controversial Issues"
- Buildings
- Maintenance of Way Work Equipment
- Economics of Railway Labor—Address by H. E. Kirby, cost engineer, Chesapeake & Ohio, on "Reducing Maintenance Man-Hours"
- Roadway and Ballast—Motion picture, "Earthquake Damage and Repairs," with comments by W. M. Jaekle, assistant chief engineer, Southern Pacific

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THURSDAY, MARCH 19

Final Session—9:00 to 12:30
Grand Ballroom

Reports of Committees on
- Ties—Address by G. M. Magee, director of engineering research, Engineering Division, A.A.R., on "Progress in A.A.R.—N.L.M.A. Crosstie Research Project"
- Track—Address by G. M. Magee, director of engineering research, Engineering Division, A.A.R. on "Prolonging the Life of Ties Through the Use of Pads vs. Hold-Down Fastenings"
- Continuous Welded Rail
- Rail—Address by Ray McBrian, engineer of standards and research, Denver & Rio Grande Western, on "Rail Problems in the Moffat Tunnel"
  Address by R. E. Cramer, special research associate professor, University of Illinois, on "Rail Failures and Shelley Rail Investigation"

Closing Business
Installation of Officers

YARDS AND TERMINALS will again get the largest share of the railways' improvement dollar in 1953. As a result, more new hump-retarder classification yards such as this will eliminate bottlenecks and reduce operating costs.

Big Plans for Fixed Properties

IN 1953 . . .

- $525,000,000 for Improvements
- $1,844,000,000 for Maintenance
- $21,400,000 for 8,300 Machines

During the present year, railways of the United States and Canada are expected to make larger capital expenditures than in any year since the record high of 1930, but not to endanger that high volume by any means. Meanwhile, expenses for maintaining tracks and structures will undoubtedly reach a new high, as will outlay of money for maintenance-of-way equipment.

For their high capital expenditures the railways expect to provide more modern facilities capable of improving efficiency, increasing capacity and reaching more traffic. For larger maintenance allotments they expect to lay an estimated 2,302,000 net tons of rail, install 41,580,000 crossties, and raise about 32,500 miles of track on which they will apply 30,500,000 net tons of ballast. However, considerable ballast will be saved by cleaning tie cribs, intertrack spaces and ballast borders.

An estimated "carry-over" of almost $300,000,000, previously authorized for improvement work not yet completed, not only assures a big start on this year's capital-improvement program, but presages a relatively high volume of completions by the end of the year. When new authorizations already made and those in the making are added to such a big start, the total of improvement expenditures in 1953 will surely be the highest since 1930.

In fact, it is estimated that road capital expenditures will total $525,000,000 in 1953. This estimate is based in part on the large "carry-over" and partly on detailed information given to *Railway Age* by 31 roads, representing 131,483 miles of line. According to their reports, these roads, some large, some small, plan to spend $275,997,304 on improvement work this year, whereas they spent only $215,287,247 in 1952. This represents an increase of more than 28 per cent over last year's expenditures. As usual, there was little unanimity among the individual budgets, some being up and others down. In all, 17 chief engineers indicated that their expenditures

LOCOMOTIVE SHOPS and servicing facilities constitute the second largest category of improvement work planned for 1953. The type of three-level working area shown here, as built into the Glenwood shop of the Baltimore & Ohio, reduces the cost of diesel repairs.

NEW LINES are being thrown out in many directions to catch new business and develop natural resources. The largest project of this kind—or any other on the railroads —now in progress, involves the construction of the 360-mile Quebec, North Shore & Labrador.

would be greater this year than last, and 14 reported that they would spend less. However, in general, the increases are larger, percentage-wise, than the decreases, with several roads planning to spend as much as 60 per cent more in 1953 than last year.

Yards and Terminals Still First

Continuing the trend of the recent past, more money has been allocated this year for yard and terminal improvements than for any other category of work. Expenditures for this type of work on 26 roads will equal more than 13 per cent of the total capital expenditures budgeted for all the roads supplying *Railway Age* with information.

Interest still remains high in construction of facilities for repair and servicing of locomotives. Since 1945 these structures have been "must" items on most improvement budgets. This high interest is reflected in the fact that every railroad except one replying to our questionnaire has allotted money for construction of locomotive-servicing facilities. However, contrary to the usual pattern of the past several years, most of these roads plan to spend only relatively small amounts for this type of facility during the year. On the other hand, eight roads plan to spend more than $1,000,000 apiece. Altogether, the locomotive facilities to be built on 30 roads this year will account for a little over eight per cent of the total capital expenditures planned by those roads.

The construction of new lines again constitutes the third largest category of capital improvements planned for the year on those roads that gave detailed information on their budgets. Although increased attention has been given to this type of work in the past few years, it is almost insignificant in comparison to the amount of new lines built during the expansion period of the railways. However, 154 miles of new lines are now under construction in the United States, and over 500 miles are being built in Canada. Ten roads report that they plan to spend for this purpose an amount equal to more than four per cent of the total budgets of all the roads supplying information.

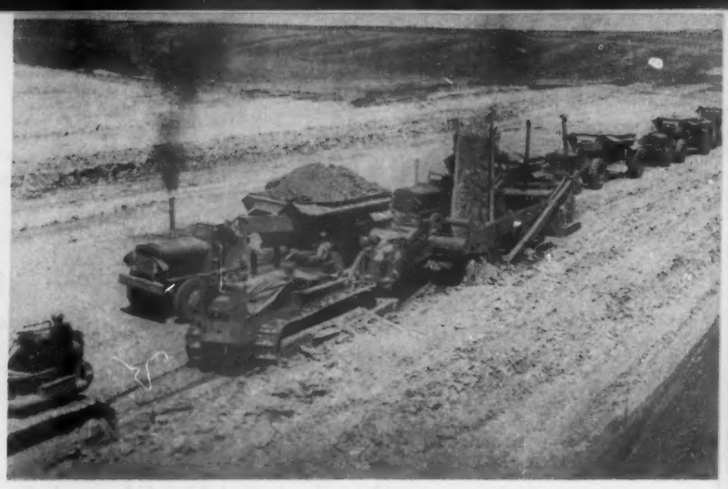
Improvements to stations, both passenger and freight, will take a larger share of the capital-expenditure dollar in 1953 than such work did in 1952. Most of this money will go toward modernization of existing structures. In fact more than three per cent of the total money allotted for improvements by the 31 roads will be spent by 17 of those roads for station betterments. Likewise, new freight stations will get a little over two per cent and new passenger stations will account for only a little less than one per cent of total expenditures.

Construction of signaling and communications facilities is expected to continue in 1953 at about the same rate as last year. This belief is based on a variety of factors, one of which is the fact that the reporting roads stated that they planned to spend about $106,000,000 for miscellaneous improvements, among which signaling, as usual, will be very prominent. The total amount authorized for miscellaneous improvements this year is about twice as much as the railroads reported last year at this time and augurs well for a large volume of signaling construction. In line with this expectation, signaling department employees are expected to spend just about as much time in 1953 as in prior years, installing automatic gates, flasher signals, or other protective devices for the safety of pedestrian and vehicle movements at grade crossings, even though 24 roads report that 113 grade-crossing elimination projects are in progress. A total of 33 roads reported that they plan to install such protective devices at 660 grade crossings in 1953. Since 32 roads planned to make such installations at about 700 crossings last year, this year's report would indicate that the railways as a whole will protect about as many crossings this year as they did last. The total number of additional crossings protected totaled 1,084 in 1947, 1,391 in 1948, 1,571 in 1949, 1,573 in 1950, 1,406 in 1951 and 1,445 in 1952.

More Maintenance Work Planned

Railways of the United States and Canada plan to spend slightly more money this year for maintenance of tracks and structures than they did in 1952. *Railway Age* predicted last March that "nothing in sight at present can prevent a new record in dollar costs from being established in 1952." As it turned out, not even the steel strike, which was not foreseen at that time.

MORE MONEY than ever before is being allotted this year for purchase of roadway machines and power tools. The economic worth of M/W equipment has long been demonstrated by such machines as this dragline shown ditching and strengthening an embankment on the IC.



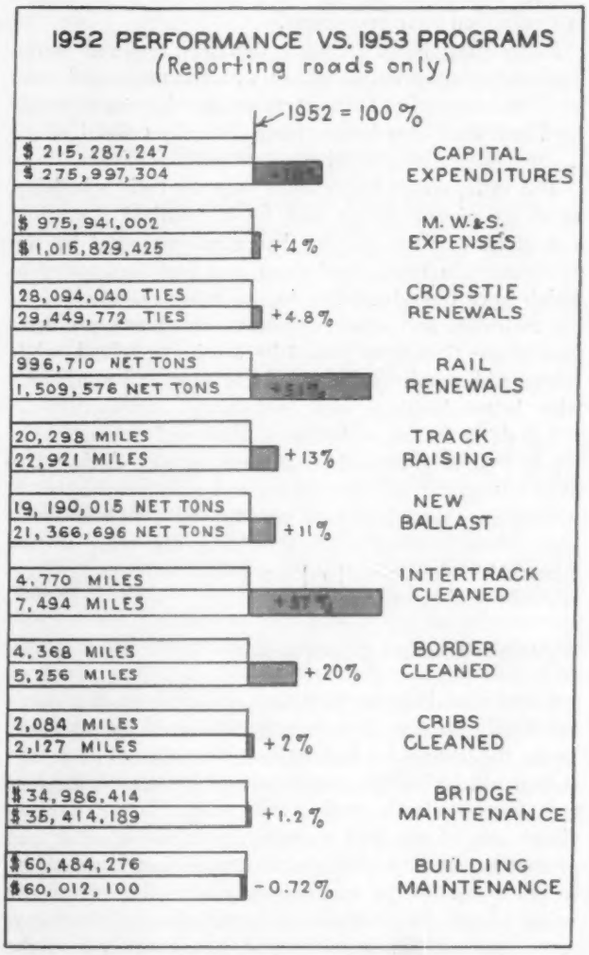
PRODUCTION-LINE earthmoving such as this lowers construction costs and hastens the day when new line changes now in progress can be placed in service to reduce operating costs and to get railroad passengers and freight over the road in less time.

could keep maintenance expenditures from reaching an all-time high. Another new record is now in the making. On the basis of reports received by *Railway Age* from 39 roads, representing 144,943 miles of line, maintenance expenditures of all the roads of the two countries will reach an estimated total of $1,844,000,000. A total of 33 of these roads reported that they planned to spend $1,015,829,425 this year, whereas they spent only $975,941,002 last year. Of these 33 roads, 22 reported that they would spend more in 1953 than last year, nine expect to spend less, and two indicated that they are going to spend the same as they did in 1952.

Higher Rail and Tie Renewals

Estimates of total tonnage of rail to be laid and crossties to be installed, given in the accompanying "box," are based on reports from major Class I line-haul railways of the United States and the two biggest roads in Canada. These reports reflect the continuing accumulation of deferred maintenance in rail. The amount of rail received by the roads in 1952 under the Controlled Materials Plan was not enough to equal current needs, much less reduce the 6,760,440 net tons of deferred rail renewals which had accumulated by the end of 1951, as estimated by the Bureau of Valuation of the Interstate Commerce Commission. In the hope that more steel will be available for rail this year, 64 reporting roads plan to lay more rail than they did in 1952, whereas only five plan to lay less and four expect to lay about the same. A total of 73 roads (two not giving figures for both years) plan to lay 1,509,576 net tons in 1953 whereas they laid only 996,710 net tons in 1952. The two major Canadian roads plan to lay 219,063 net tons. It is estimated that all the roads of both countries will lay about 2,302,000 net tons during the year.

Despite the steel strike and the attrition of maintenance budgets because of floods, earthquakes and other disasters, the railways installed in 1952 an estimated 1.5 per cent more ties than in the previous year, when a new low record was established. In keeping with the general increase in maintenance programs for 1953, it is expected that even more ties will be installed than in 1952. This belief is supported by the fact that 47



REPORTS TO *RAILWAY AGE* from representative roads in the United States and Canada indicate overwhelmingly that plans and budgets are bigger this year than last year.

reporting roads indicate that they plan to put in more ties this year than last, while only 24 plan to install fewer ties and eight will install about the same number. Altogether, 80 roads plan to install 29,449,772 ties—

(*Continued on page* 96)

Why We Need More Technically

There aren't enough engineering graduates to go around—and if the railroads are to get their share they all have to work together competing with other industries

The railroads of this country must keep pace with modern methods just the same as other industries. The great advancement in technological knowledge and the need for applying that knowledge to present-day practices makes it necessary for the railroads to have men in their organizations who are capable of analyzing and taking advantage of the latest methods of doing work. If they do not have such men then the railroads will fall far behind in serving the public and in earning a fair return on their investment.

Railroading is an industry that has required sound engineering since its inception; with the many and complex refinements in all departments there is even a greater need now than ever before for technically trained minds if our industry is to survive.

The railroads of today must step up their schedules, requiring higher speeds and faster terminal operation, and at lower costs. This is being accomplished by improvements in track, equipment and facilities, many of which have their inception in the research activities of the railroads and other organizations. Many problems that at one time were passed by are being solved, while others still require solution. Better cars and equipment with better bearings and lubrication, stabilization of roadbed, concrete of better quality and strength, improvement of alinement and grade, proper drainage, a higher standard of joint design and maintenance, better fueling facilities, improved station and terminal buildings, better routing of traffic—these are some of the many fields of endeavor which require careful and correct analysis and solutions.

A Need—and an Opportunity

There is no industry anywhere, in any field, that needs technically trained men to solve its problems as much as do the railroads. Railroading has always been and always will be, by the very nature of its service, the best field for technically trained men, and offers to the engineer one of the best opportunities for endeavor and promotion. It is a well demonstrated fact that an increasing number of engineers in other industries are being placed in positions of management. They start out in engineering capacities and, because they have the necessary knowledge and background to succeed, are later placed in management. This line of promotion is not being carried out to a comparable extent on our railroads and we should give serious thought to this fact. If the railroads are to solve their many and intricate problems properly they should grasp this opportunity to use technically trained minds. This can only be done by hiring young engineers and training them for the duties that lie ahead.

Written Especially for *Railway Age*

By C. G. GROVE

Chief Engineer
Western Region, Pennsylvania

The problem of attracting technical graduates into railroad service is one that Mr. Grove has given careful study. As a top maintenance-of-way officer of the Pennsylvania it was his responsibility for many years to persuade an annual quota of engineering graduates of high caliber to enter the service of his road and to undertake its course of training for young engineers. Each year, in carrying out this responsibility, he visited various colleges and universities to interview students who had indicated an interest in railroading as a career. Also indicative of his interest in the subject is the fact that he is now entering upon his third year as chairman of A.R.E.A. Committee 24—Cooperative Relations with Universities. As senior vice-president of the A.R.E.A., he will become the next president of that association.

It is well known that any organization that is satisfied to function over a period of years under the direction of an outstanding executive without training many men for the top positions is headed for trouble when the chief executive retires. There are many examples of this lack of planning, as well as examples of companies that are looking ahead and have men always coming along, who can be selected for key positions.

Trained Men Today

Some railroads, for example, find themselves in the predicament of not having trained men to move ahead when they are needed. To have men to move ahead when positions of responsibility are vacant requires a well conceived and balanced program of hiring young men and properly training them. Some of our railroads have done this; others have not.

Engineering graduates are not being produced fast enough at present to meet the demands of industry, partly due to the fact that some of them are being inducted into the armed services. In a recent address Frank W. Edwards, professor and director of engineering at Illinois Institute of Technology, explained why the demand for engineers today greatly exceeds the supply. Estimates of the number of engineers needed range from 30,000 to 40,000 graduates annually, he said. Then he went on to say that only 22,000 engineering students are expected to complete their college work in 1953, and less than 20,000 will graduate in 1954. Estimates of the Engineering Manpower Commission of Engineers Joint Council are that there will be only 22,000 engineering graduates in 1955, and less than 29,000 in 1956.

What Do Railroads Offer?

These figures explain why there is now, and will continue to be, keen competition to obtain the services of engineering graduates. If the railroads are to secure their share of graduate engineers they must go about the business of setting up an organization to recruit them.

A good recruitment procedure, however, will not secure the engineering graduates unless the railroads have something to offer that compares favorably with such other industries as steel, chemical, air transport, automotive, and oil.

The competition for engineering graduates is keen and it would be well for the railroads to see that their starting salaries, training programs, working conditions, insurance and opportunities are in line with those of other industries. Generally speaking, no industry can offer a young man a more varied, challenging, moving and broader opportunity than a railroad. In the recruiting program an effort should be made to secure young men who have some railroad background, or connection, and who already are enthusiastic about their future as railroad men.

To employ young engineers is not enough. A definite broad training program must be carried out over a period of months, or years, during which the young man will have every opportunity to ask questions and learn by actually performing a great many duties. The program must be flexible enough to allow for varied abilities of different individuals in order that the natural interests of each man will be directed into lines of endeavor where he will be able to function naturally and most productively for his company. This training program and the activities of the trainees must be constantly reviewed in order to sustain and direct their interest and to have the young men know that they are being observed and that they can secure help and advice along the course of their training.

Any company with a policy of bringing a certain quota of young engineers into its organization each year and of training them for positions of responsibility will not awaken one day to find that it has no men coming along to fill vacancies. It will find that it has the men it needs, and that, because of their background, these men in all probability, potentially at least, will be better than the men who are retiring. It will also find that technical men have the qualifications required for handling positions of responsibility in operation, accounting, real estate, purchases, stores, finance and insurance, as well as in engineering.

There is an angle to this problem that must not be overlooked. The colleges and universities that are turning out the technical graduates have not, in recent years, received the utmost encouragement and cooperation of the railroads in educating young men along the lines needed by the railroads. There are relatively few railroads, compared with other industries, that send representatives to the campus to interview students. In many cases there is no railroad option in the curriculum because there has been relatively little demand for it. You will find, however, that every college and university is eager to help us in our requirements for preparing a young man for a successful railroad engineering career.

Mr. Grove Offers Plan of Action

If the railroads are interested in securing, in competition with other industries, technical graduates to help them rebuild, maintain and manage their properties in keeping with the necessary high standards and new developments that mark our present age, they certainly should give consideration to taking the following action:

(1) Encourage our colleges and universities to provide the proper courses for training railroad engineers.

(2) Provide recruitment programs and contacts with placement officers.

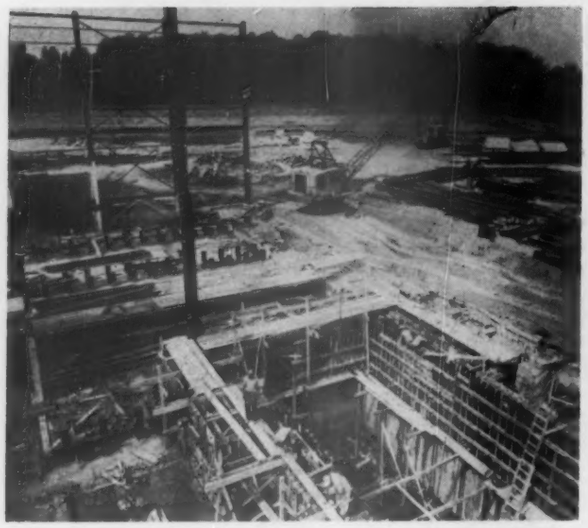
(3) Set up definite training programs.

(4) Review and adjust starting salaries and schedule increases to meet those in other industries.

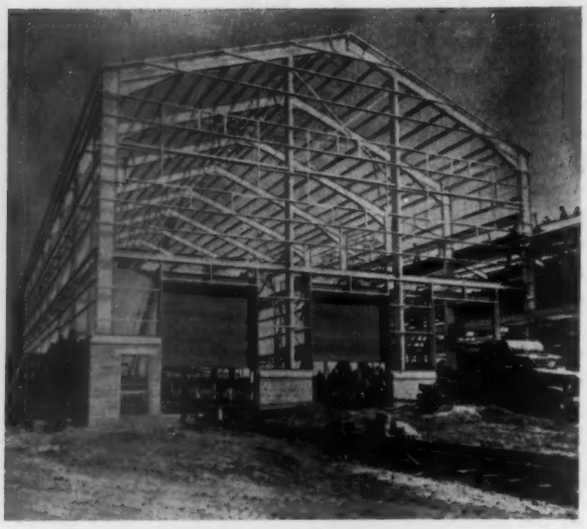
(5) Make definite commitments to graduate engineers as to future promotions based on demonstrated ability.

(6) Embrace every opportunity to talk to groups of high school students and students in colleges.

(7) Encourage dissemination of printed information to educational groups so young men may know what engineering is and then, while in high school, point their studies towards engineering as a career.



THEY GO UP FAST! **1** **STEEL WORK** begins with foundations still under way.



2 **CONNECTIONS MADE IN THE FIELD** were used for most of the steel frame of the through-track portion of the Minoa shop.

Using Standardized Buildings

New York Central employs prefabricated frames in four diesel shops. They are designed for different classes of service and repairs, and have areas ranging from 2,800 sq. ft. to 48,800 sq. ft.

Among the structures the New York Central system has built in recent years for the servicing and repair of its rapidly growing fleet of diesel-electric locomotives are four shop buildings in which the structural frames are of prefabricated construction, mass-produced by a private firm in accordance with its own standardized designs. In choosing this type of construction the road was influenced by the economies inherent in standardization, the adaptability of the standardized designs to its specific needs, and particularly the availability of the prefabricated steel during the recent period of scarcity and allocations.

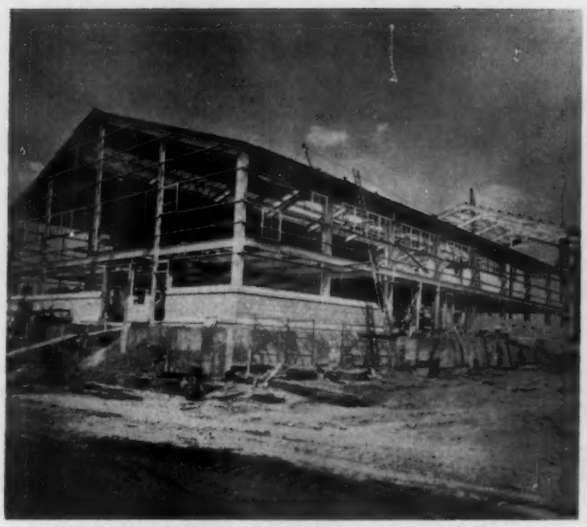
The four standardized diesel shops on the New York Central were all constructed by the Luria Engineering Company from designs developed in conjunction with the New York Central's engineering department. The structural members were fabricated and mass-produced from standard rolled sections at the company's plant at Bethlehem, Pa. Both welded and riveted connections were used, and with these particular buildings the connections were made in the field. Ordinarily, however, many of the connections are made in the shop.

The four standardized steel buildings on the New York Central, all in New York, are located at Corning, Rochester, Watertown and at the road's DeWitt yard in Minoa (East Syracuse). Diesel shops on this road are designated as Class A, B or C. Class A shops are for making heavy running repairs, Class B facilities are for making light running repairs, and Class C shops are for light maintenance and inspections. The structure at Watertown is a Class B shop, and those at Rochester and Corning are Class C facilities.

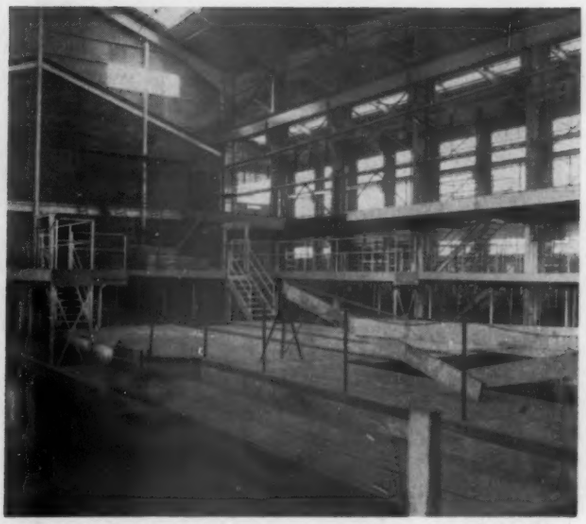
The shop at Minoa, the latest of the four to be constructed, is now nearing completion. It is a Class A facility and, hence, is by far the largest of these standardized buildings, covering 48,800 sq. ft. of space. It affords an interesting example of the manner in which elements of standardized design can be adapted to structures of considerable size and where there is a need for flexibility of arrangement. In fact, the shop at Minoa is said to represent the most extensive use of standardized construction on any railroad to date.

Erected over concrete floors, foundations and pits designed by the railroad and built by its general contractor, the shop at Minoa has a structural steel frame in which the main load-carrying members consist of wide-flange beams of various sizes. The side walls and roof are of corrugated Transite lined on the inside with Celotex-Cemesto, 2 in. thick, to add insulating value.

The main shop portion of the building consists of two adjoining high bays each with a clear span of approximately 77 ft. between the center lines of the supporting columns. One of these bays, to be used for servicing locomotives, has three through tracks, is 243 ft. long and is served by a 5-ton traveling crane. The other high bay, devoted primarily to heavy repairs, has three stub-end tracks and is 143 ft. long. This section is served by a 30-ton overhead crane. Both of these sections have the typical arrangement of elevated, cab-floor height and depressed working levels flanking the track pits. The



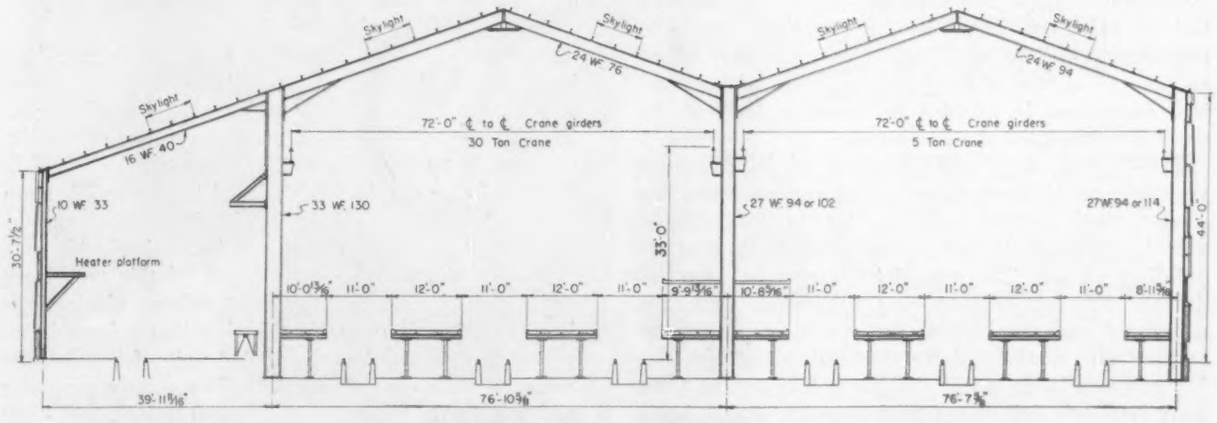
3 **THIS THREE-STORY PORTION, located behind the heavy-repair section, will house offices, storeroom and other auxiliary facilities.**



4 **CLEAR SPAN between supporting columns in both servicing and heavy-repair sections of the Minoa shop is about 77 feet.**

5 **STRUCTURAL FRAMES are of rigid design, with both welded and riveted connections. Skylights are of corrugated wireglass.**

6 **COMPLETELY ENCLOSED, but not wholly finished, the Minoa shop looked like this. Siding is corrugated Transite, lined with insulation.**



THE MINOA SHOP has typical arrangement of pits and platforms. Servicing bay at right; heavy repairs in center. Lean-to at left houses wheel-turning machine.

working platforms consist of concrete slabs supported on steel beams and columns. A feature of the platforms is that a 4-in. raised curb extends along the edges of each of them.

On the opposite side of the stub-end section of the building from the through-track section, is a lean-to building, 40 ft. wide and 143 ft. long, which houses a wheel-truing machine. This section has a single through track in which the rails are flush with the top of floor.

Behind the heavy repair, or stub-end, portion of the building is a three-story section which houses the offices, storerooms, a lubricating oil test room, fuel and lubricant pumps, the filter cleaning room, the heating boiler, a compressor, a switchboard and a foam room, all designed by the road's engineering department.

Large glazed areas are provided in the side and end walls. Skylights in the roof are formed by continuous bands of corrugated wireglass. The openings for locomotives in the end walls are fitted with overhead steel rolling doors. Ample provision is made for ventilation, including lines of roof ventilators in all sections of the structure.

Other Shops Vary in Size

The standardized steel building at Corning, a Class C shop, which was placed in service in January 1951, is 20 ft. by 80 ft. in plan, with one through track. Space for offices, storerooms, and other services is provided in a lean-to 18 ft. wide. This structure, covering 2,800 sq. ft., was the first of the standardized steel buildings to be erected as a diesel shop on the New York Central. The second is the shop at Rochester, also a Class C facility, which, covering 4,800 sq. ft., is 40 ft. by 120 ft. in plan and has two through tracks. A lean-to 18 ft. wide flanks the main building on each side. This structure was placed in service in the spring of 1952.

The structure at Watertown, a Class B shop, was also placed in operation last spring. It is 40 ft. by 140 ft. in plan, has two through tracks, and covers an area of 5,600 sq. ft. It has a 15-ton overhead crane. Like the one at Minoa, the three other standardized shops have frames of wide-flange beams, and walls and roofs of corrugated Transite lined on the interior with Celotex-Cemesto.

Although the standard steel buildings described in this article comprise only a portion of the shop facilities that are being constructed on the New York Central in conjunction with its dieselization program, they afford an example of how prefabricated buildings of standardized design can be adapted in providing facilities for the different classes of diesel repairs.

These diesel shops and other related improvements were designed by the engineering department of the New York Central. In each case considerable work was involved in addition to the provision and erection of the buildings proper. The general contractor on each job did the grading, drainage and foundation work and supervised and coordinated the operations of subcontractors who carried out the electrical, plumbing, heating and ventilating work. The Luria Engineering Company furnished and erected the framework of each building, and applied the roofing and siding.

PLANS FOR FIXED PROPERTIES

(*Continued from page* 91)

more than all Class I roads put in during 1951. The two major Canadian roads plan to install a total of 6,037,979 ties, each road planning to insert more this year than last. In line with these reports, it is estimated that all roads will install 41,580,000 ties during the year.

Largely because of these large rail and tie-renewal programs, the roads are scheduling more out-of-face surfacing work for this year than usual. A total of 36 roads, representing 150,350 miles of road and 184,540 miles of main track, report that they will raise 22,921 miles of track this year, whereas they raised only 20,298 miles last year.

As a part of their raising programs, 36 roads plan to apply 21,366,696 net tons of ballast. This compares with 19,190,015 tons applied last year by these same roads. Even this high total planned for installation this year would probably have been much higher had not 15 roads planned to clean considerably more ballast than usual. These 15 roads report that they plan to clean 7,494 miles of inter-track and 5,266 miles of border during the year in comparison to the 4,470 miles of inter-track and 4,360 miles of border cleaned in 1952. As a part of their raising and ballasting work this year, 21 roads will crib 2,127 miles of track. These same roads cleaned the cribs in only 2,084 miles last year.

Whereas the track forces have scheduled more work than usual in 1953, the bridge and building department is expected to continue at about its normal pace. According to 34 chief engineers, only a little more bridge work is planned for 1953, and slightly less building work, than last year. These men report that they plan to spend $35,414,189 on bridge maintenance this year in comparison to the $34,986,414 spent in 1952. They expect to spend more money for maintenance of buildings during the year than for bridges, but the $60,012,100 budgeted will be less than the $60,491,276 they spent last year.

Work Equipment Purchases

These large maintenance programs constitute a major incentive for the railways to buy more equipment this year than in the recent past. In fact, it is hardly to be expected that these programs could be economically completed without the use of many efficient, modern machines—new or old. Interest in roadway machines is also expected to become more intensified as the year progresses because a relatively large number of new or improved types of equipment are now being offered by the manufacturers or planned for presentation in the fall. These units are specifically designed to accomplish more work at less cost and, if they do it with as much success as some of their predecessors, will be received with open arms. The demand for some or all of this machinery will be a big factor in the exact volume of machines bought during the year. At this time that volume is expected to reach no less than 8,300 units, for which the railways will spend $21,400,000. This volume compares with 8,000 units bought in 1952, 9,700 in 1951 and 8,700 in each of the two preceding years.

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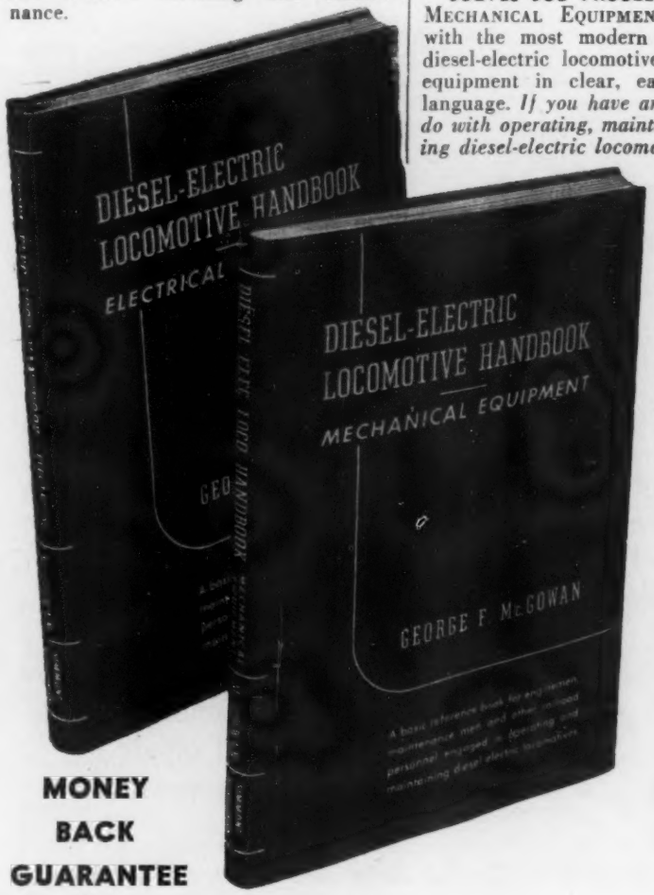

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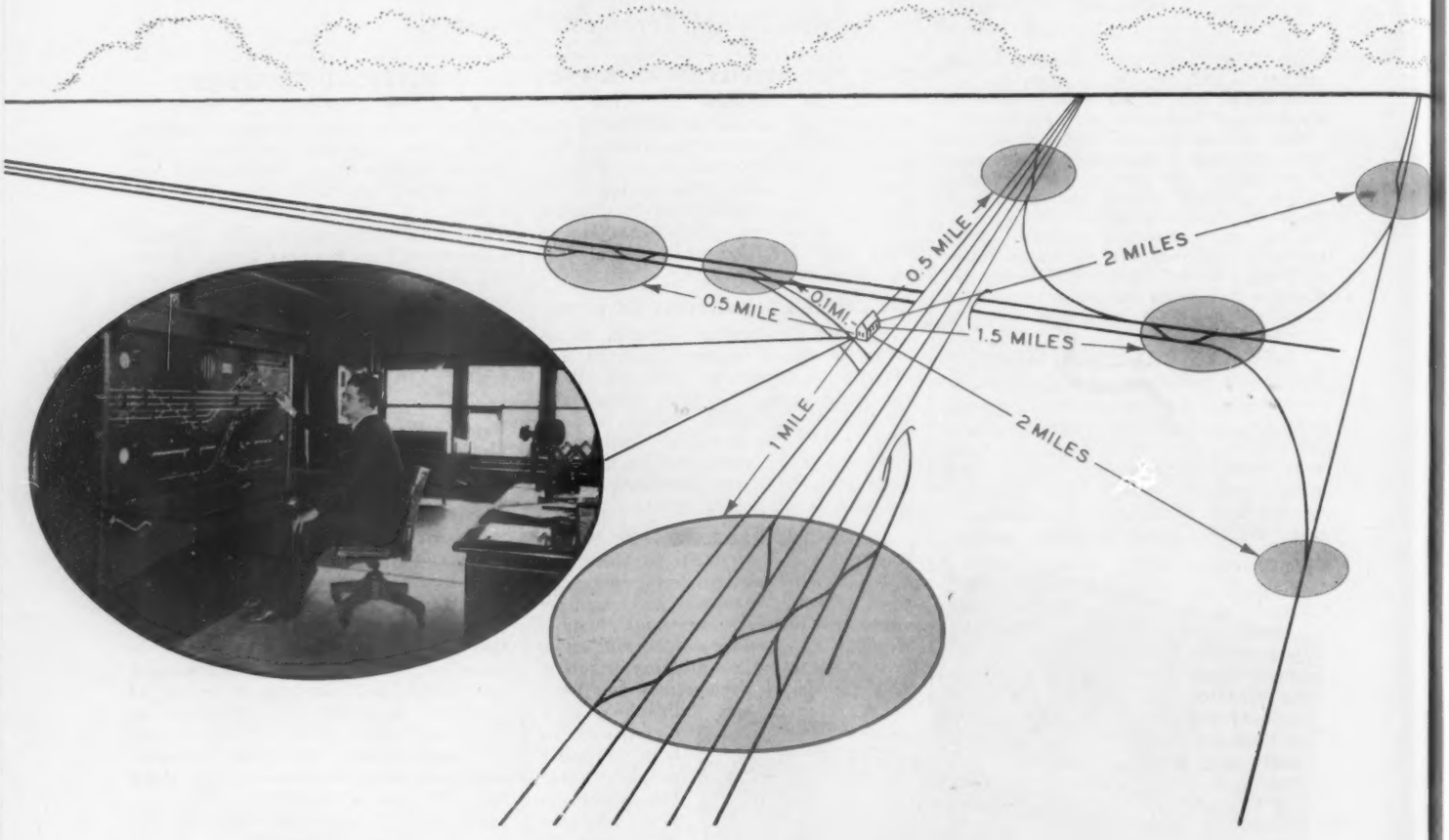

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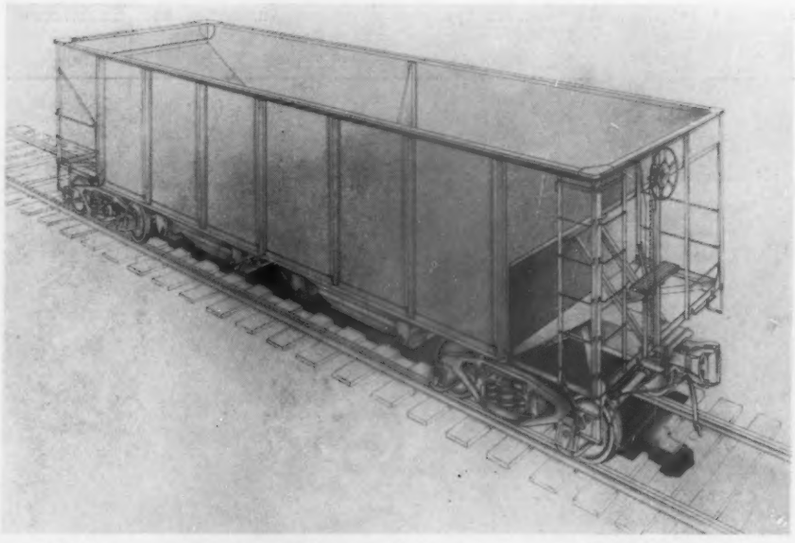
Ballast Cars

An order for 500 all-steel 70-ton capacity ballast cars of welded construction for the Southern Pacific has been announced by Pullman-Standard Car Manufacturing Company, Chicago. Outstanding feature of the new cars is their welded construction which will eliminate lap joints and rivet heads and provide a self-clearing interior for greater control of ballast distribution.

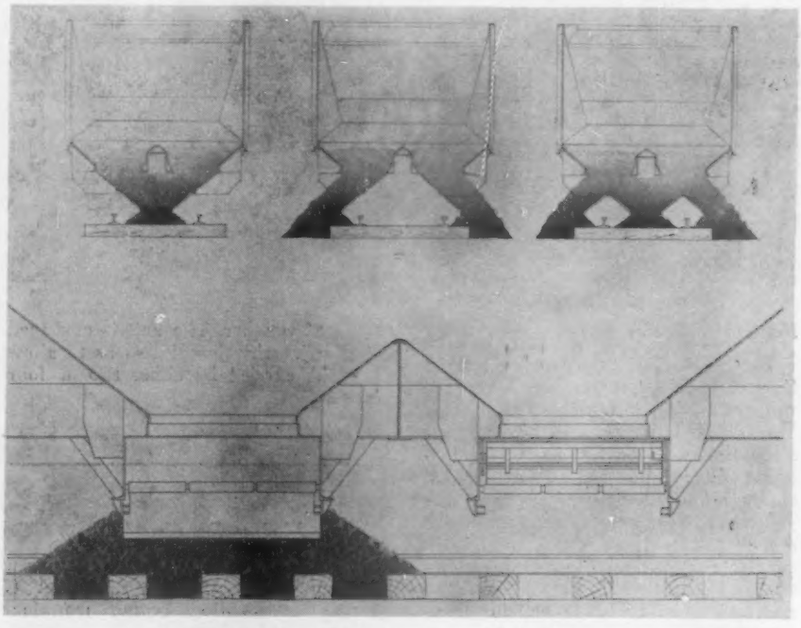
Each car has eight longitudinal doors, four side and four center doors. The center doors operate as two units, each longitudinal half of the car acting as a single unit, to dispose of the load between the rails. For convenience, the center doors are operative from either side of the car. The four side doors operate as separate units to dispose the load outside the rails. Both side and center doors are under the control of the operator through the medium of enclosed self-locking worms and gears in housings, enabling the operator to safely stop the doors in any desired position. All door-operating mechanisms will be supplied by Enterprise Railway Equipment Company, Chicago.

The construction of the new car is designed to facilitate the free flow of ballast. The end floor sheets slope 30 deg. from the end to the bolster, and the lower floor sheets lay at a slope of 36 deg. from the bolster to the door. All floor sheets are 5/16-in. plate and are secured by welding, thus eliminating obstructions. The side slope sheets, also of 5/16-in. plate, extend from the side sheets to door opening and from slope floor sheet at end to crossridge floor sheets. They are sloped 36 deg. and are assembled by welding.

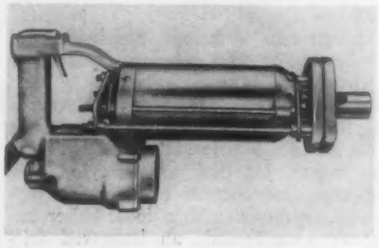
All side stakes are located outside the car and are automatically arc-welded to the side sheets. This design is said to keep interiors smooth and to reduce damage and corrosion of stakes. There are only two inside side braces. All side sheets are ¼-in. plate butt-welded together vertically and secured to the side sill and side plate by automatic arc-welding. The Western Pacific has ordered 100 ballast cars of this design but with less inside length and somewhat less capacity •



Artist's drawing of new 70-ton all-steel ballast cars of welded construction.



Arrangement of the eight longitudinal doors of the ballast cars.



Electric Hammer Drill

For speeding up quantity hole drilling in concrete and masonry, the Syntron Company, Homer City, Pa., has made a new 2-in. capacity, heavy-duty electric hammer drill available. Designated Model 26-RO, the new hammer drill combines the power of an electromagnetic hammer with automatic rotation of a spiral-fluted, carbide-

tipped drill bit. The automatic rotation is accomplished by a rubber ratchet mechanism which utilizes the recoil of each hammer blow to turn the drill bit slightly.

The manufacturer claims that considerable torque at the correct speed is produced as the hammer piston operates at 3,600 blows per min. In addition, operator fatigue is reduced, since manual quarter turning of the drill bit is eliminated. The spiral-fluted carbide-tipped drills are available in a variety of hole diameters •

Portable Generator

The Homelite Corporation, Port Chester, N.Y., has marketed a dual-voltage, 5-kw., portable generator Model 32A 115/230-1, which can carry a continuous load of 5 kw., single-phase, 60-cycle alternating current at either 115 or 230 volts. The portable generator is designed to start and operate electric tools and equipment, such as electric saws, drills, routers, tampers and sanders, in the construction and transportation fields, and for emergency lighting and standby power. A 115-volt a.c. standard convenience outlet is supplied, along with a special waterproof 3-pole receptacle for connecting either 115- or 230- volt motors, tools and appliances.

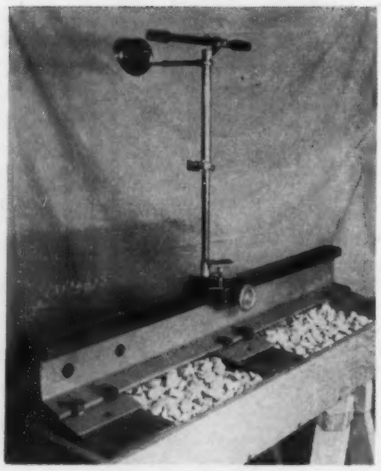
The generator, which is 29 in. long, 24½ in. wide, and 25½ in. high, is driven by a Homelite Model 32 gasoline engine, and weighs 228 lb. complete. Voltage regulation from no load to full load is approximately 6 per cent.

The manufacturer states that rain and dust-proof ignition, plus an adjustable jet-type pressure fuel system, make the engine easy to start in all types of weather. The unit is equipped with adjustable handles so as to allow it to be carried by either two or four men •

Track-Lining Scope

A number of improvements have been incorporated in the latest Model C Hayco track-lining scope, manufactured by the Brice Hayes Company, Chicago. Greater strength, plus lightness and non-corrosion qualities, are assured by replacing the welded steel base of the previous model with a heat-treated cast-aluminum base. The staff is now protected with a patented "Electro-film" plating, which is said to be non-rusting and does not require lubrication.

A new non-glare rear-view mirror is now standard equipment on the scope, and a sunshade is furnished, as is a newly designed carrying case of varnished outdoor non-warping plywood, equipped with a lock. Other improvements include an improved friction bearing, a newly designed telescope arm, new rubber telescope extenders, a brass restraining chain, and a newly designed vernier adjustment. All parts of the new Hayco scope are of either chrome-plated steel, Electro-film plated steel, brass, or heat-treated aluminum •



Track Broom

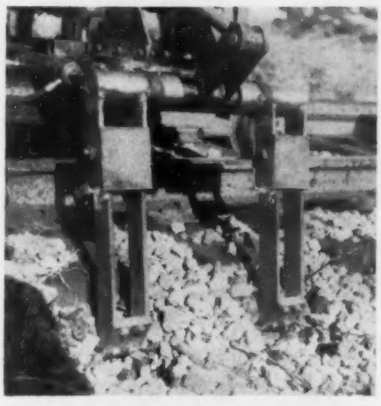
A self-propelled on-track unit, the Track Broom, has been developed by the Kershaw Manufacturing Company, Montgomery, Ala., primarily as a companion unit to the company's Ballast Plow and Regulator for removing all loose excess ballast left behind a surfacing gang. It can also be used for

The Track Broom will pick up excess ballast left behind a surfacing gang and discharge it in windrows on each side of the track.

A steel brush picks up the material and deposits it on a two-way conveyor. The machine is operated by one man.

yard-cleaning purposes. It is powered by a four-cylinder, 24-hp., air-cooled gasoline engine and is equipped with a steel brush which is used to sweep ballast or dirt up on a two-way conveyor. The conveyor discharges on both sides, with half of the picked-up material going to each side.

When used with Kershaw's Ballast Plow and Regulator, the Track Broom is said to dress track completely. When used for yard-cleaning purposes, the Track Broom removes the material from between the rails and from the ends of the ties and places it in windrows between the tracks. A front-end loader is then used between tracks to load the material onto trucks for disposal. The Track Broom weighs about 6,000 lb. and has a capacity of from 800 to 1,000 ft. an hour •



Two tamping bars at each side force the ballast under the ends of two ties to a depth of 6 in. No tie nipping is required.

Combination Jack and Tamper

A combination hydraulic jack and tamping machine, designated the Jack-All, has been developed by the Kershaw Manufacturing Company, Montgomery, Ala. This machine is a self-propelled track-mounted unit which raises the track and tamps ballast at the ends of two ties at one time. It has two hydraulic rams which automatically operate two rail dogs as the jack foot is lowered between the ties, thus raising the track. It also has two hydraulically operated tamping bars on each side which press or push the ballast under the tie ends to a depth of six inches.

The rock ballast is said to be forced under the ties with a pressure of 1,500 lb.; no tie nipping is required.

The Jack-All is powered by a 12-hp. gasoline engine which drives two hydraulic pumps delivering a pressure of 1,000 p.s.i., and is propelled by a hydraulic motor. The weight of the machine is approximately 4,000 lb. New improved eye-level spotboards and a set-off are furnished with the machine.

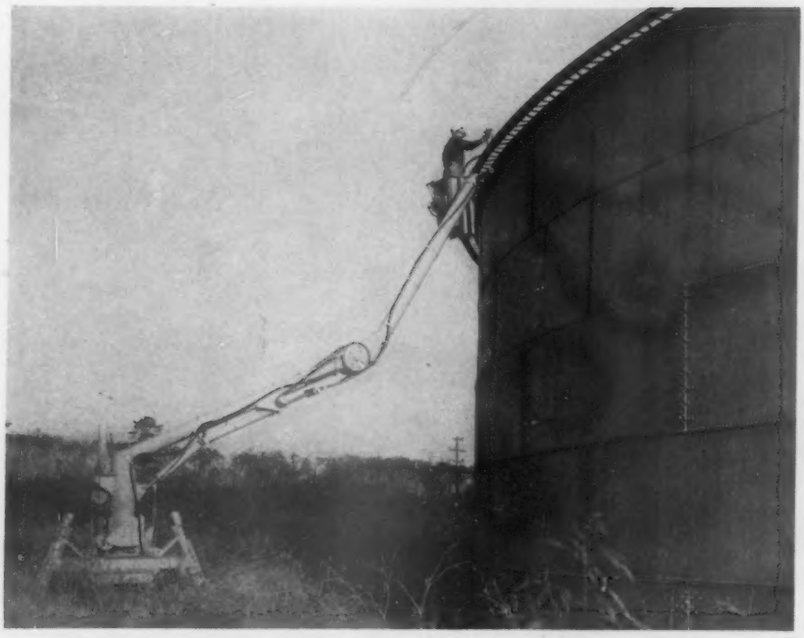
The Jack-All is a self-propelled unit operated by one man and is used for raising and tamping track ahead of machine tampers.

The Jack-All is operated by one man with another operating the spotboard. The operating cycle for each raise is said to be about two minutes. On some recent tests, the manufacturer states that 1,155 ft. of track were raised in less than 2 hr. while it was working ahead of a Multiple Tamper. On other tests, he says, the Jack-All has raised track one inch at four minutes per rail •

Truck Crane

A 6-ton truck crane, designed primarily for mounting on a suitable new or used truck furnished by the user, has been announced by the Thew Shovel Company, Lorain, Ohio. The manufacturer also points out that this unit has other applications, such as mounting on piers, barges, bins, docks, trailers, flat cars, etc. Designated as Lorain Model TL-10, this unit consists of a complete superstructure equipped as a lifting crane which can also be used as a ⅜-cu. yd. dragline or clamshell.

The TL-10 incorporates oil-enclosed gears, anti-friction bearings, interchangeable clutch shoes, safety-glass windows, and lights. It is a two-drum, gasoline-powered machine equipped with a 25-ft., two-piece, butt-flange connected boom. Center sections are available for extending the boom to 45 ft. Tagline for clamshell service, fairlead for dragline service, precision power boom-lowering device, and other extras are available •



Crow's Nest

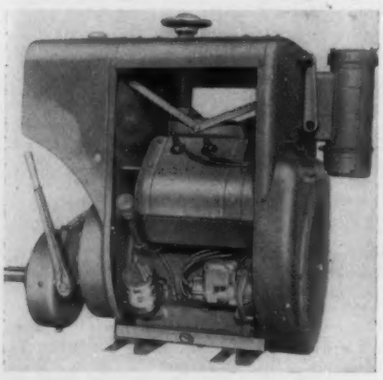
A man-carrying mechanized crow's nest, designated the Schramm Skyworker, has been introduced by Schramm, Inc., West Chester, Pa. This unit can be moved about at the will of the operator and has a compressed-air outlet for operating air tools at various heights up to 37 ft. above the ground and at distances up to 28 ft. from the turret. It enables one or two workmen to elevate themselves without the use of ladders or spurs for working on bridges, tanks, catenaries, signal towers, etc.

The Skyworker is mounted on a Schramm Pneumatractor to provide a self-propelled combination that can be driven under its own power from one job to another. The crow's nest of the Skyworker has a capacity of 500 lb. and is mounted on a rotatable articulated boom controlled either at the crow's nest or at ground level for elevation, extension and a rotation of 370 deg.

A Schramm 105-cu. ft.-per-min. Pneumapower unit provides air for operating tools such as drills, chipping and caulking hammers, paint sprays, sand blasts, etc., at these heights•

Brush-Cutting Saw

For clearing right of way, Brushmaster Saw, Inc., Keene, N.H., has marketed a brush-cutting saw, the Brushmaster, which can be carried by one man in a sling-suspension belt. This unit is powered by an air-cooled, two-cycle gasoline engine and weighs 35 lb. The circular saw blade is replaceable. Safety features include the shielding of all moving parts of the motor, an engine throttle located at the hip for quick engine control, and an automatic clutch which disengages the saw when the engine is idling. The manufacturer states that one man with this saw can clear brush six times faster than by hand, and that the saw is effective on briars, brambles, vines, brush, and saplings up to 4 in. in diameter •



Gasoline Engine

The Wisconsin Motor Corporation, Milwaukee, Wis., has announced the addition of a new unit, Model VG4D, to its line of gasoline engines. Model VG4D is a 4-cycle, V-type, 4-cylinder gasoline engine having a 3½-in. bore, 4-in. stroke and 154-cu. in. displacement, and develops a peak rating of 36 hp. at 2,200 r.p.m. This engine is said to be smooth-running, even-firing, and well equipped to provide the extra margin of power needed for operating equipment within the 25- to 36-hp. range.

The manufacturer states that the light weight and compactness of the design simplifies the problem of engine installation on modern equipment where weight and space limitations are important factors. It is also claimed that efficient, positive cooling is obtained, even at extremely high temperatures, from a large fan cast in the flywheel, which forces a strong blast of air across and around the cylinders and heads. Valve rotators of the positive type are furnished on the exhaust valves as standard equipment •

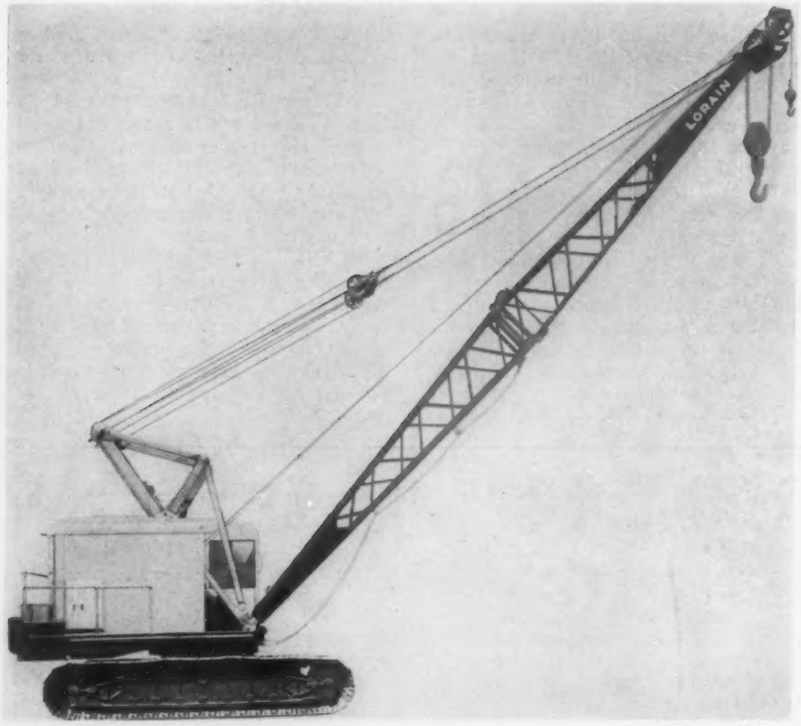
Unloading Platform For Oil Stations

The Nichols Engineering Company, Chicago, has recently developed a dome unloading device for tank cars. The device is said to give the operator safe, direct communication between the ground and the dome of the car, without the necessity of climbing vertical ladders or having to stand on the insecure footing of the rounded tank top while operating the dome hatch door and inserting a suction pipe into the dome of the tank car.

The device consists of a pipe column support surrounded by a movable pipe column that supports the operator's platform. The movable pipe column and the operator's platform rest on thrust-type roller bearings, which permit the operator to turn the safety platform 360 deg. if so desired. The movable pipe support is kept concentric about the fixed column by radial bearings mounted on vertical cam-type spindles.

A 4-in. diameter oil pipe is provided that extends down into the fixed supporting column and is attached to the base supporting casting. This pipe extends up through the operator's platform to a desirable height. To it are connected the swing joints, horizontal pipe, elbow and upper half of the lever-operated coupler.

For completing the suction pipe run above the platform, a 4-in. aluminum alloy suction pipe is provided with foot strainer and lower half of the clamp coupling. A dust cap is furnished for protecting the pipe when the aluminum pipe is not in use. The base supporting casting is so designed that piping from the main reservoir can be attached to either of the two outlets provided for this purpose, depending upon which direction the piping to the reservoir is to be run. A lighting arrangement is provided for unloading cars at night. A collapsible type awning is also available for the operator's protection during inclement weather. The device is mounted with anchor bolts to a concrete pier furnished by the user •



Crawler Crane

A 45-ton crawler crane, designated Lorain 820-KS, has been developed by the Thew Shovel Company, Lorain, Ohio. It has a diesel-powered turntable with hydraulic coupling power take-off and is mounted on extra wide and long crawlers. It features a high-speed, double-threaded, worm-driven boom hoist with ratchet-and-pawl safety lock. The crawlers are of the two-speed chain-driven type, 18 ft. 6 in. long and 14 ft. 2 in. wide, with 48-in. wide cast manganese-steel tread shoes. Power for the machine's two travel speeds in both directions is transmitted through a separate horizontal travel shaft on the turntable.

The 820-KS is equipped with a new, two-piece, pin-connected boom with which a power-operated tilting-and-folding type high gantry and a floating harness for reeving six parts of the boom-hoist cable are used. Center sections in 10- and 20-ft. lengths for lengthening the boom to 100 ft. and a 25-ft. tip extension of 6 tons capacity, that can be used either straight or goose-necked, are available. Open-throat construction at the tip of the boom allows hoist cables and hook block to clear the boom when operating at near-vertical position •

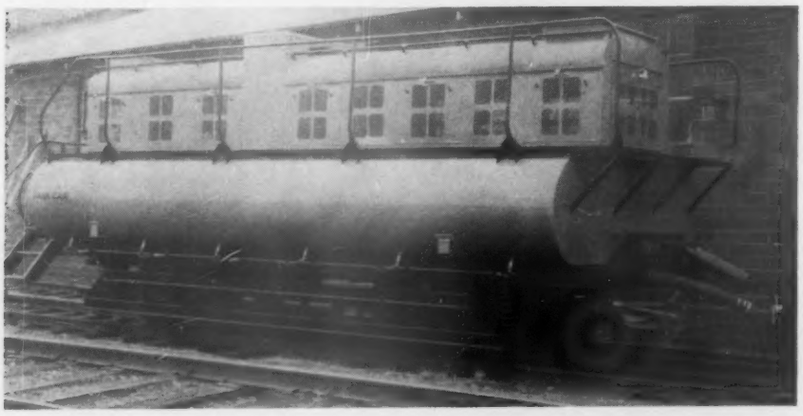
Gradall Improved

The Warner & Swasey Co., Cleveland, Ohio, announces that several improvements have been made to its earthmoving machine known as the Gradall. A better distribution of the

load with respect to the frame has been made so that the unit is said to be tip-proof without the need for outriggers. Also, the carrier's wheel base has been shortened 18 per cent to provide greater maneuverability. The weight of the chassis is now 12,550-lb., which the manufacturer states is the heaviest ever to be used for Gradall mounting.

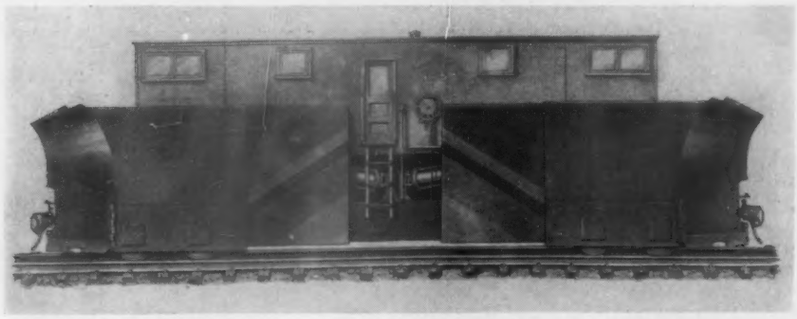
The engine used in the undercarriage is a 427-cu. in. L-head unit developing 140 hp. at 2,800 r.p.m. An oversize radiator is used to insure ample cooling even when running idle at high ambient temperatures. Also, a 13-in. vibration-dampened clutch is incorporated in the design, as are Timken axles and Bendix-Westinghouse air brakes.

Available for the first time as an optional accessory is a remote-control carrier-drive system so that one-man operation of the Gradall is possible. By means of pushbuttons in the upper cab, the operator may actuate a pneumatic-electrical control system which gives him complete control of the carrier. The motor may be started and stopped and the unit may be driven forward or backward and steered right or left, so that the operator may spot his carrier as the work proceeds without leaving the Gradall upper cab •



Weed-Spray Tank

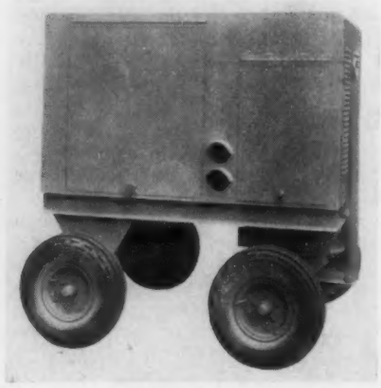
For use with its Class W66 weed sprayer, Fairmont Railway Motors, Inc., Fairmont, Minn., has made a 3,000-gal. capacity tank trailer unit available. This unit, known as the Class W70 Series A, is spring-mounted and has air brakes controlled from the cab of the spray car. It is equipped with a portable-type gasoline engine-driven pump of 10,000 gal. per hr. capacity, which is used as a transfer pump to fill the tank, and also, when spraying, provides hydraulic jet agitation for the liquid in the tank. The trailer includes a covered filler opening at the center of the tank, expanded metal walks and steps, and is equipped with all the necessary items for connecting the trailer to the spray car •



Double-Ended Snow Plow

To meet the need for a snow plow that does not require turning, the O. F. Jordan Company, East Chicago, Ind., has developed a double-ended snow plow, the "Twin-Type," which can plow in either direction and eliminates the inconvenience of running the equipment long distances to locations where a turntable or other turning facilities are available. The new machine has plow wings at both sides at each end capable of being extended to a distance of 8 ft. 2 in. from the center of the track. The end plows can be adjusted vertically in 1-in. increments from above the top of rail to 5 in. below the top of rail. In traveling position, the end plows can be raised to approximately 9 in. above the top of rail.

The new Twin-Type plow has many of the same features of Jordan's Type A snow plow, including rigid welded underframe with pointed ends to give maximum support to the plows. All wings are operated by compressed air cylinders, and the unit is equipped with standard A.A.R. brakes and a hand brake. The cab is insulated and has provision for the installation of heating equipment, if desired. A set of controls is furnished at each end of the cab, both working from the same air supply. Bucket-type seats for the operators are positioned for good visibility and comfort. An inside stairway at each end of the cab provides access to the front plow pin rack settings located beneath the cab floor •



Mobile Generator

The Bogue Electric Manufacturing Company, Paterson, N.J., has developed a line of trailer-mounted mobile electric generating plants for use by railroad construction and maintenance crews. These plants are available with gasoline, diesel, or electric-motor drive in capacities up to 50 kw. For conventional applications, 60-cycle single or three-phase a.c. generators are normally supplied. For welding purposes, heavy-duty d.c. generators, furnishing up to 400 amp., can be supplied. In addition, trailer-mounted generating sets furnishing both a.c. and d.c., and sets providing 400-cycle a.c., are available. For applications where extremely close voltage regulation is required, Bogue generators can be obtained equipped with magnetic amplifiers which the manufacturer states will hold the output voltage constant to plus or minus 1 per cent, from no load to full load •

Sewer Pipe Joint Compound

Sewertite, a new plastic sewer joint compound said to provide a permanent and efficient bond with ease of appli-

cation, has recently been made available by the Philip Carey Company, Cincinnati, Ohio. A scientific formula which combines bitumens, organic additives, asbestos fibers, mineral stabilizers, and solvents, is claimed to provide a heavy trowel consistency and give the compound extra adhesive powers. The manufacturer states that Sewertite, in addition to being acid

Sewertite as applied to tongue and groove sewer pipe prior to laying.

and alkali resistant and waterproof, possesses thermoplastic properties that give tight but flexible joint sealing and greater resistance to cracking than other rigid cement and hot-sealing compounds. Sewertite requires no heating. Other claimed advantages of the compound include immediate back-fill after application, flexible joints which remain pliable, reduction of the danger of root break-through, and long life without joint repair •

Spike Puller

A new machine, designated the Nordberg Hydraulic Spike Puller, has been announced by the Nordberg Manufacturing Company, Milwaukee, Wis. This unit is powered by a piston-type hydraulic pump, as used for years

The power plant is off the track with the pulling tool in working position. When the unit is moved along the rails on its two roller wheels and outrigger, the pulling tool is set on a carrying rack.

on the Power Jack, driven by a Briggs & Stratton engine. The spike-pulling tool weighs 45 lb. and is a hydraulic ram with a claw which fits over the head of the spike. When the operator presses the valve trigger, the spike is pulled and ejected. The claw then returns to the pulling position.

The power plant is mounted on a frame equipped with two ball-bearing double-flanged rollers and an outrigger for movement along the rails. The pulling tool is connected to the power plant by flexible hydraulic hoses which are long enough to reach spikes at either rail. A pneumatic wheel is provided for setting the machine on and off the track.

Ditching Machine

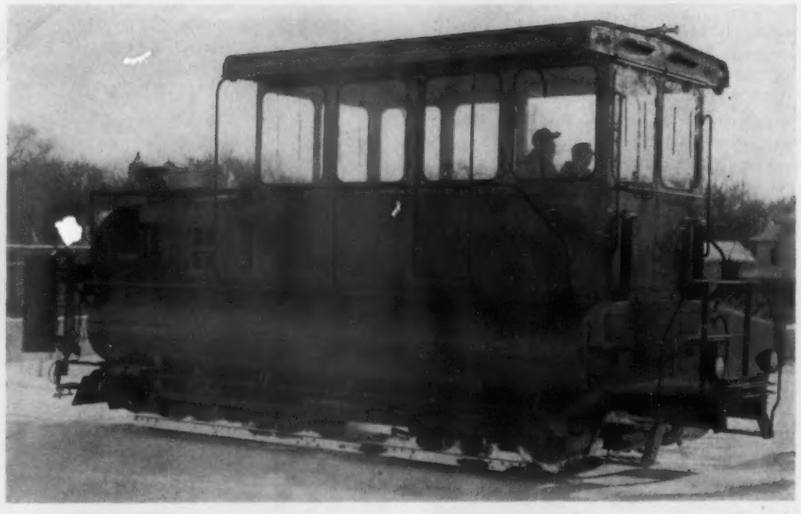
A new "Runabout" ditcher, Model 705-B, has been announced by the Barber-Greene Company, Aurora, Ill. The new machine features three important design improvements—a complete fluid coupling added to the "Hydracrowd" hydraulic transmission which featured its predecessor Model 705-A, a counterbalance valve incorporated in the hydraulic drive mechanism, and special curved digging teeth. The fluid coupling allows slippage and stops the bucket line whenever the ditcher encounters underground obstructions, such as hidden pipes, boulders or roots. This prevents damage to the machine and no additional overload protection is required. It is said, also, that the fluid coupling permits application of an even, steady pressure on the digging face of the trench. The

counterbalance valve in the hydraulic drive mechanism eliminates any "runaway" tendency when the machine is digging on a down-hill slope. The new design of curved teeth is said to increase the digging efficiency of the machine, to permit them to be reversed for doubling their normal service life, and to make their replacement easy. The manufacturer states that, while digging, the forward speeds of the new machine range from zero to 16 ft. per min., and the digging range is 5½, 7½, and 10½ in. in width and up to 4 ft. in depth •

Tie-Bed Scarifier

For simplifying the installation of crossties, Fairmont Railway Motors, Inc., Fairmont, Minn., has developed a new machine, the W87 Series A Tie Bed Scarifier. With it, the manufacturer states, one operator can dig a uniform tie bed 10 ft. long in an average time of 1 min. after the old tie has been removed. The W87 is hydraulically operated throughout by two hydraulic pumps driven through V-belts by a four-cylinder, air-cooled engine. A hydraulic motor, through a speed reducer and three roller chains, drives the three sets of digging teeth, which are renewable. Two hydraulic cylinders raise and lower the digging assembly which is pivoted at the rear of the unit and has its own separate frame. A hydraulic motor, through a speed reducer, propels the machine, and a hydraulic cylinder operates a built-in turntable for assisting in set-offs.

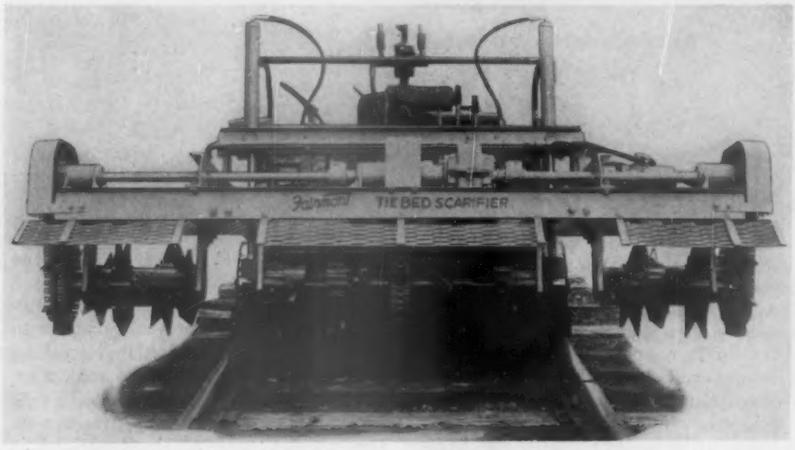
The engine is equipped with a manual clutch and an electric starter. Service brakes are vacuum controlled while the parking brakes are manually controlled, and both are of the four-wheel type. The main frame of the machine is of structural steel, and the floors and guards are made of expanded metal. Wheels are demountable. For emergency use, the machine is equipped with a hand-operated hydraulic pump which can be used to raise and lower the digging assembly and to operate the turntable •



Improved Weed Spray Car

The weed-spray car, known as Class W66 Series B, has been improved considerably, according to its manufacturer, the Fairmont Railway Motors, Inc., Fairmont, Minn. Improvements include a more powerful propelling engine, an improved driving arrangement, larger capacity pumps and air compressor, and relocation of the tank agitation system. The new propelling engine delivers 130 hp., and has overhead valves and removable cylinder sleeves. This is said to be a 16 per cent increase in power over the former machine. The manufacturer states that the new engine will provide greater efficiency, especially when operated under near full-load conditions. A three-speed transmission with full reverse is now used in the drive. This gives an adequate choice of operating speeds, and the full reverse makes the three speeds available for either direction of travel. The new transmission also is said to provide easier and more positive shifting.

The axle drive gear is of stronger construction on the new model, and, since the directional gears and shifting parts have been eliminated, it is also simpler. Both the spray pressure pump and the loading and agitation pump have been redesigned to provide approximately 30 per cent greater capacity, thus assuring ample reserve for all spraying needs, reducing tank filling time, and increasing agitation of the liquid in the tank. A 20 per cent increase in compressor capacity is said to insure an adequate supply of air at all times for controlling the spray valves, raising the wings, and operating the brakes, horns, windshield wipers, and sanders •

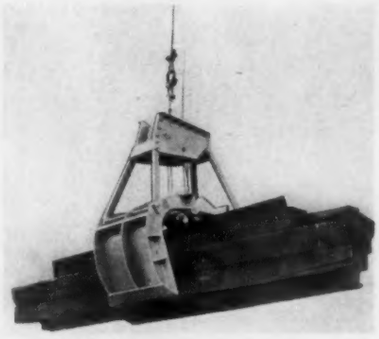


Portable Drinking Water Tank

For answering the cry of "water boy" in construction and maintenance-of-way work, the United States Envelope Company, Springfield, Mass., has developed a new type portable drinking-water tank which eliminates the community dispensing ladle. This tank is made of stainless steel and is vented at the top for keeping the water cool. It is equipped with strong web-type carrying straps, which can be adjusted to fit the carrier's back, and also a handle at the top for handling purposes.

A container and dispenser is at-

tached to one side of the tank for sanitary paper cups, and a compartment at the bottom serves as a used-cup disposal chamber. The manufacturer states that messages will be imprinted on the Ajax paper cups without additional charge to promote safety campaigns, and the cups will be packed in such a way that an assortment of safety messages will be contained in each carton of cups •

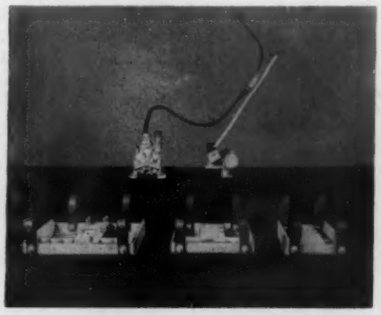


Tie Grapple

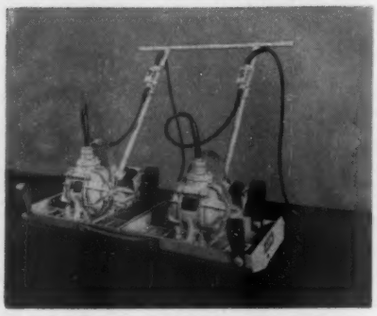
For use in loading and unloading ties, the Blaw-Knox Company, Pittsburgh, Pa., has designed and marketed a new tie grapple. Based on actual performance tests, the manufacturer states that this grapple will save up to one third of the man-hours required to load or unload ties and up to one half the man-hours required for piling ties. Except for cast steel sheaves and forged steel corner bars, the entire device is fabricated by welding from rolled steel. The grapple is 3 ft. wide and opens to a distance of 6 ft. 6¼ in. between tines. It weighs 2,000 lb. •

Compactor Bases

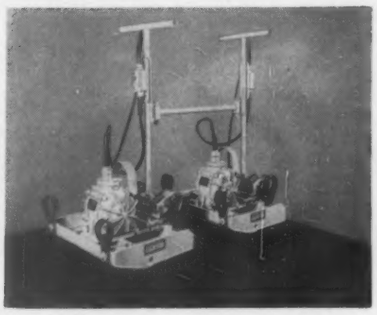
Jackson Vibrators, Inc., Ludington, Mich., announce the development of new and more simple bases for its manually operated Vibratory Compactors. These bases are available in any size from 12 to 24 in. and are interchangeable so that the vibrating motor and operating handle can be attached to any one.



Compactor bases are available in sizes from 12 to 24 in. and are interchangeable. Vibratory motor and operating handle in background.



A pair of compactors joined as a team so that one operator can do the work of two. These compact a width of 4 ft.



When hooked in tandem, the operator directs the travel by pivoting the rear compactor.

Since there are just three component parts involved, it is said that switching bases requires just a few minutes work so that one machine can be used to full potential in compacting granular solids in trenches as narrow as 12 in., compacting subbases for concrete floors, fills of granular soil such as for bridge approches or pipe lines, blacktop highway patching, and similar operations.

Attachments have also been made available for coupling a pair of the bases and operating handles together in side-by-side or in tandem positions so that one operator can do the work of two. The two-abreast hook-up has a total width of 4 ft. •

Truck-Mounted Crane

The Schield Bantam Company, Waverly, Iowa, has developed a new truck-mounted shovel crane designated as Model T-35. Rated at 6 tons capacity, this crane is available with a complete line of matching attachments, including a ⅜-cu. yd. shovel, clamshell, dragline, back hoe, magnet, wood grapple, and pile driver. Major improvements of this machine over the previous Model M-49 include a stronger frame, larger shafts and bearings, larger diameter center pin, newly designed trunnion base with wider trunnion rollers, and the use of four adjustable cam-type hook rollers instead of three. Also, the surfaces of the drum clutch, the drum brake and the boom-hoist brake

have been increased for better control.

Other features of Model T-35 include a high degree of operator visibility, safety glass windows, anti-friction bearings, machine-cut gears, internal expanding band-type clutches with molded linings and positive-action rollers, external contracting brakes, band-type swing brake, and a jackshaft mounted tagline. The T-35 can be mounted on any new or used truck having tandem axles and a wheelbase of 164 in. or more •

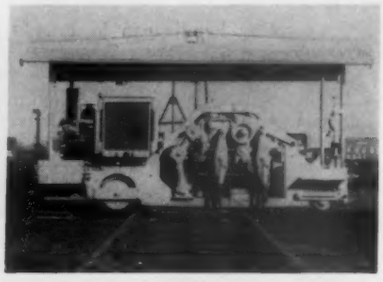
Wrought-Iron Tie Spacers

The A. M. Byers Company, Pittsburgh, Pa., has announced the application of wrought iron for tie spacing on railroad bridges. Wrought-iron bars for this purpose are presently in use on a large Eastern railroad, replacing 8-in. by 5-in. creosoted guard timbers. The wrought-iron spacers measure ⅝ in. thick by 3 in. wide by 19 ft. 11¾ in. long, and are punched at 4-in. intervals. They are spiked to the ties, parallel to the rails, at a point directly beneath the drains on refrigerator and passenger equipment. The use of wrought iron for this purpose is said to result in maximum durability in extremely corrosive service; elimination of one or more fire hazards from the bridge deck; elimination of an annoying, work-interrupting stumbling block for track maintenance men; and increased speed, accuracy and ease of installation •

Tamper Turntable

The Matisa Equipment Corporation, Chicago, has developed a turntable for turning its tamping machine. Using this turntable, it is said that the tamping machine can be turned in 10 to 15 min. without the use of any tools. The manufacturer states that two men can assemble the turntable, which weighs approximately 600 lb. and consists of four main parts: a base which rests on the ties, a hydraulic cylinder, a hydraulic pump, and a platform, the edges of which support the tamper while it is being turned. Shims are provided for making the turntable level where the ties are not flat. The turntable raises the tamper about 3 in. and can be used on tracks having rails of any section •

A hand pump is used to raise the machine so it can be turned after the turntable has been placed on the ties between the rails and the tamper has been correctly spotted over it.



When the tamping machine has been turned 90 deg., the lifting platform is in the position as shown in the first view.

Impact Wrench

The Mall Tool Company, Chicago, has announced the development of an electric impact wrench designed to remove and tighten bolts, nuts, screw spikes or lag screws up to and including the ⅞-in. sizes. Designated the Model 4EW Tork-Hammer, this unit is powered by a universal-type motor of 25 to 60 cycles that is available for either 115 or 230-volt current and operates the spindle at 1,800 r.p.m. free speed. Its housing is made of aluminum alloy for keeping the weight at a minimum without sacrificing strength. It has precision gearing and a balanced armature to reduce vibration and to prolong tool life. It features a man-sized pistol grip and a detachable handle that can be mounted in any one of three positions. The trigger switch has a locking pin for sustained service. It requires a generator of 2,000 watts •

Improved Engines

A new clutch has been installed on gasoline engine Models 9FB, 14FB and 23FB of Briggs & Stratton Corp., Milwaukee, Wis. The clutch is manually operated, compact, and is said by the manufacturer to have ample capacity for every operation within the power range of the engines. The manufacturer states that the new dry-plate, over-center type clutch, mounted directly to the engine crankcase, provides positive neutral and power engagement, thus assuring absolute safety of operation. The power take-off shaft is carried in a double-thrust ball bearing. No lubrication is said to be required other than occasional greasing of the bronze throwout bearing, which is easily accessible through a greasing porthole •

Tie-End Remover

An improved model of the Woolery Tie End Remover has been made available by the Woolery Machine Company, Minneapolis, Minn. This unit, which is a companion machine for the Tie Cutter, is used to push tie ends outward and clear of the rails. In operation, after lifting out the center portion of a tie when it has been cut by the Tie Cutter, the operator lowers the hydraulic ram of the Tie End Remover into the tie bed, and opens a valve which causes the pistons of the ram to move outward. When the tie ends have been pushed clear, the operator closes the valve and springs within the hydraulic cylinder cause the ram to retract. The whole process can be car-

The Woolery Tie-End Remover in operation.

ried out in about one minute. The improvement recently made to this machine is the incorporation of a quick-acting relief valve which permits the hydraulic ram to be left in the tie bed while the remainder of the machine is quickly removed from the track in the event of an emergency •

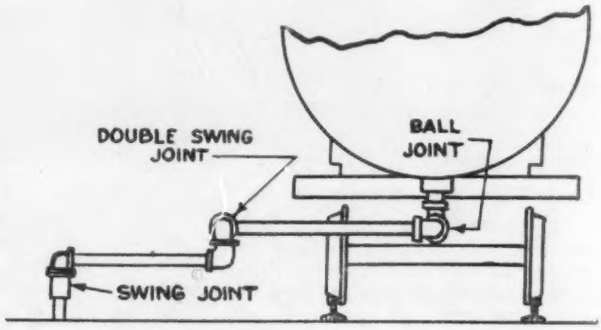
Water-Repellant For Concrete

Exterior surfaces of concrete can now be protected from spalling and cracking due to water absorption, according to the manufacturer, by applying a coating of Stonseal, which is a compounded water-repellant marketed by the Stonhard Company, Philadelphia. It is said that the use of this repellant provides a "raincoat" for brick, concrete, stucco, and other masonry, and causes water to bounce off the walls. Also, it is claimed that this product is effective in preventing efflorescence and the adhesion of soot or grime to the walls.

Stonseal is a liquid chemical compound that can be brushed or sprayed in place and does not require a long drying period. The manufacturer states that it causes no discoloring or change in texture of the coated surface, that it is acid and alkali-resistant, is unaffected by salt spray, and can be applied at any temperature. It is also claimed that it leaves no film so there is nothing to wear away; yet it allows the masonry to "breathe" •

Swing Joints for Railroad Use

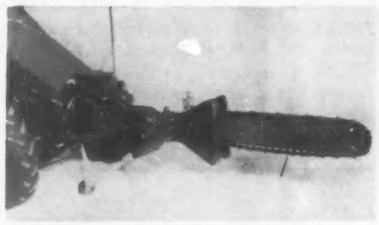
The Barco Manufacturing Company, Chicago, has recently made available a series of swing joints especially suited for railroad use in tank car loading and unloading and diesel locomotive fueling. These joints, which are suitable for handling oil, gasoline, water, air, gas, and many chemicals, are available in six single-swing styles, and five double-swing styles. The manufacturer claims that the joints may be easily disassembled for maintenance and cleaning without detaching from the piping. The joints feature "O"-ring seals and ball bearings, and are available in 2-in., 2½-in., 3-in., and 4-in., pipe sizes. The manufacturer will also supply complete loading and unloading assemblies built to the user's specifications •



Barco assembly for bottom unloading of tank cars.

Tie Pad

The Racor Tie Pad has been developed by the Ramapo Ajax Division of the American Brake Shoe Company, Chicago, to prevent the mechanical abrasion of switch ties, bridge timbers and ties on curves, through road crossings and station platforms, and at other critical points. It is reported that exhaustive tests conducted on the Ramapo Ajax tie wear machine have shown the new pad to be highly durable and effective in the prevention of mechanical wear. The pad is of a rugged rubber-fiber compound which is said to provide high tensile and compressive strength combined with sufficient flexibility to adapt itself to the irregular surfaces of ties. It is coated with an asphaltic sealing compound to prevent the seepage of water and foreign matter beneath the pad. Racor Tie Pads are available in a wide range of standard sizes •



Chain Saw Attachment

A new chain-saw attachment, which is designed to notch, fell, trim, cut up or mortise timber, has been announced by Gravely Tractors, Inc., Dunbar, W.Va., for its 5-hp. Gravely tractor. The chain saw is adjustable to any angle vertically or horizontally by adjusting the clamp bolts and the manufacturer states that it will fell trees up to 24 in. in diameter with one cut.

The chain saw is driven through spiral bevel gears and splined shafts. An Oregon Chipper chain saw with fast-file teeth is used. The chain bar is of special tempered alloy steel, having a maximum width of 4¼in. and a length of 24 in. from the stop to the end of the bar. The chain sprocket is of carburized steel. The oil system illustrated is being replaced by a simple pressure system •

Boiler Water Treatment

A new boiler water treatment, known as Borgana, developed by the Chemical division of the Portland Shingle Company, Portland, Ore., and distributed by the Strong, Carlisle & Hammond Co., Cleveland, Ohio, has recently been made available. The manufacturer claims that, by adding approximately 1 qt. of Borgana per 100 boiler-horsepower per week, complete boiler treatment is obtained. Borgana is a concentrated neutral liquid obtained by caustic extraction from

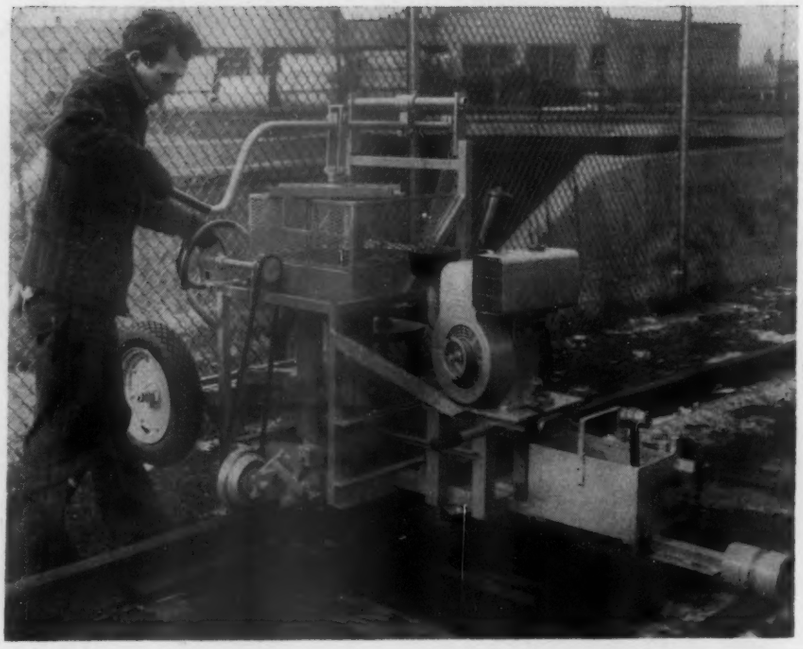
waste wood of western red cedar and consists mainly of dissolved lignins, tannins and semi-resinous materials. It is said to be non-toxic to personnel either internally or externally, and non-injurious to metals, gaskets or packing materials.

It is claimed that Borgana penetrates between layers of boiler scale and loosens deposited materials, which settle to the lower boiler areas as non-adherent sludge, where they can be removed by blowdown or at boiler cleaning periods. Aside from dissolving and removing existing boiler scale and preventing deposition and formation of new scale, Borgana is said to inhibit rust, corrosion and pitting throughout the system, reduce foaming, and inhibit embrittlement tendencies. It is designed for use in all types of plants and steam systems with almost any feedwater conditions, and is especially recommended for boilers from 50 to 500 hp., where pre-treatment of feedwater is normally not practiced. In addition to its use in boilers, Borgana can be used for treating cooling water in refrigeration and air conditioning systems, and other units where scale and corrosion difficulties occur•

Impact Wrench

The Independent Pneumatic Tool Company, Aurora, Ill., has announced its new Thor 3/8-in. portable pneumatic reversible impact wrench, which weighs 5 3/4 lb. and measures 8 11/16 in. in length. Equipped with a side handle and trigger-type throttle, the wrench has a reversing valve located at the back of the tool and may be equipped for either vertical or horizontal suspension on assembly lines or for permanent locating of the unit from overhead balancers. The manufacturer states that this wrench has an exclusive rolling ball-type cam which increases efficiency and the steady functioning of the impacting mechanism. The wrench is available with two types of spindles—the size 24, with a 1/2-in. square drive, and the size 24S with a 7/16-in. hexagon quick-change chuck integral with the spindle.

The wrench is powered by an air motor which transmits power to the impact mechanism through a torque-increasing planetary-gear system. The heat-treated alloy steel gear elements are precision finished and mounted in full anti-friction bearings•



Tie Drill

For speeding up the boring of spike holes, either in the anchor-spike or the rail-spike positions, in the field, the Nordberg Manufacturing Company, of Milwaukee, has marketed a new tie-boring machine which has been designated the Nordberg Tie Drill. This unit is a track-mounted machine, powered by a Briggs & Stratton engine, and has two drilling spindles which bore two holes simultaneously, one on each side of the rail. The drilling is done through the tie-plate holes and the spindle positions can be adjusted to fit any standard tie-plate punching. The wheel mounting is so arranged that the correct position of the spindles, relative to the gage side of the rail, is always maintained. The operator observes one of the bits and, when he spots this bit in one of the spike holes of the plate, the other bit is automatically spotted in the desired spike hole on the opposite side of the rail•

Snow-Plow Attachment

An improved snow-plow attachment has been made available for the Prime-Mover materials handler by the Prime-Mover Company, Muscatine, Iowa. The new attachment is designed with heavier controls for easier handling, and features a 50-in. angling blade which, it is said, can be easily detached to allow the Prime Mover to resume its material-handling duties. While the blade is in use, the 10-cu. ft. bucket can be filled with ballast or sand for spreading on icy sidewalks•

"STANDARDIZE

ZED DESIGN means

INTERCHANGEABLE PARTS"

. . . said the colonel to the p.f.c.

"And interchangeable parts mean speedy replacement," continued the colonel, "in machine-guns, tents, jeeps—you name it!"

"Yes, sir," said the p.f.c.

"Remember, son, many a day has been saved because a standardized part of our equipment enabled us to replace it quickly."

"Yes, sir," said the p.f.c.

The Armed Forces learned long, long ago the importance of *standardized design.* In Box Cars, it means quick service . . . savings in time, trouble, and cost. *Look over these reasons and we think you'll agree—*

IT'S BETTER TO BUY THAN TO BUILD

Your shops AVOID OVER-EXPANSION—no need to duplicate the cost of A. C. F.'s up-to-the-minute facilities in shops, tooling and personnel.

You get MORE VALUE—and you can order lots of 10 or 100 cars at any time—scheduled delivery.

And you get STANDARDIZATION—which means better-built cars with fully interchangeable sub-assemblies and standard parts.

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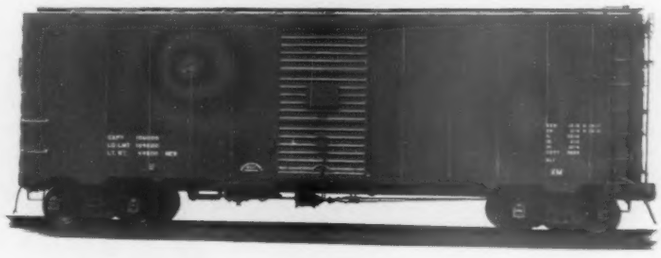

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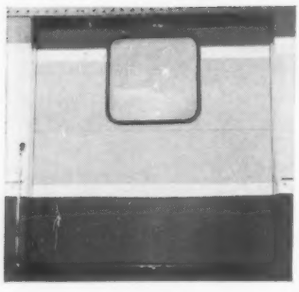
MET-L-WOOD DOORS

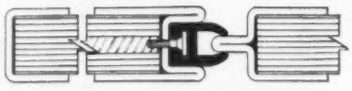
METAL BONDED TO PLYWOOD

★ LIGHT... TOUGH... DURABLE
★ NO THROUGH-BOLTS
NO WARPING
★ NO TWISTING
NO SWELLING

BAGGAGE AND POSTAL CAR DOORS



Completely weatherproof Met-L-Wood doors effectively prevent internal rust and rot... and their tough, smooth surfaces stay new-looking for years. Stainless steel channels along bottom edges of sliding doors are rustproof... virtually wearproof. All-rubber window sash installed or removed in minutes... rattleproof... water- and weatherproof. Available in full width and split types ... sizes to meet all needs.

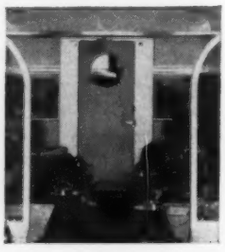


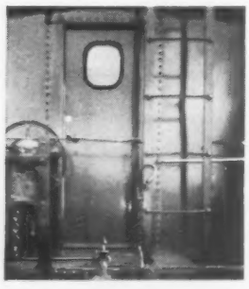
Exclusive Split Door Seal

Drawing above shows simple Met-L-Wood Split Door Seal which assures weather- and watertightness for years of continual use. Seal also provides effective cushion when closing split doors.

PASSENGER CAR END, VESTIBULE, INTERIOR DOORS

Sound-deadening, insulating, vibration-damping Met-L-Wood doors for passenger cars add to service life, cut deadweight ... Combine modern, clean-line beauty with great strength and durability. Furnished for manual or automatic operation, with or without hardware assembly. Tapping plates for hardware are built into doors ... invisible additions to strength and trouble-free service life. Sizes and types to fit all requirements ... exact dimensions insure quick assembly and perfect fit. Door thicknesses from ½" up, as required.





CABOOSE DOORS

Met-L-Wood caboose doors are built to last the life of the caboose—and to give trouble-free service the whole time. Weather-proof, warp-proof, rot-proof doors can be provided with or without stationary windows in all-rubber sash or with standard drop sash. Available with or without hardware. In all sizes to exactly meet specifications.

DIESEL LOCOMOTIVE DOORS

Widely used by builders on new locomotives, Met-L-Wood doors guarantee trouble-free operation of end and interior doors on diesel road locomotives and cab doors for diesel switchers. Furnished to exact dimensions, with or without windows; either with hardware installed, or with tapping plates placed for hardware assembly on the job.

Write for this Bulletin

Met-L-Wood Bulletin 520 gives the complete, illustrated story on Met-L-Wood doors for railroad uses ... shows construction details, describes standard and special types and sizes. Your copy sent free upon request—write for it today.

MET-L-WOOD
CORPORATION

6755 W. 65th Street
Chicago 38, Illinois

MET-L-WOOD • *STRONG... LIGHT... Smooth Finish... Sound Deadening... Fire-Resisting... Insulating*

GN Tackles "Head-End" Delays

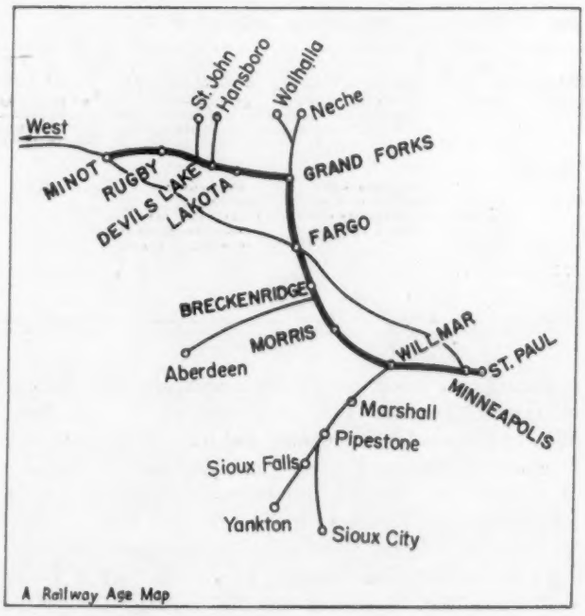
Fork trucks and collapsible containers tested to speed handling of storage mail and railway express on passenger trains

The Tools Used

CONTAINERS. **Steel-wire mesh welded on 2 in. centers on a pallet-type floor with skids at one end and dual wheels at the other. The wheels are fixed and have a 4-in. tread to facilitate movement over regular floors. Inside dimensions: 56 in. by 40 in., and 54 in. deep over the bottom. Overall height from floor is 62 in., permitting their passage through an average baggage-car door. Capacity is 70 cu. ft. or about 1,500 lb.—roughly the equivalent of 25-30 sacks of mail. Collapsible construction consists of single panel ends, and sides of three horizontal panels. Empty weight, 275 lb. Manufactured by Pittsburgh Steel Products Company, Pittsburgh, Pa. Cost about $90 each. (Note: These specifications are not rigid; the containers can be manufactured to meet any specifications.)**

HAND JACKS. **Four small wheels placed at the end of a handle, and equipped with a coupling knob which engages a projecting loop on the base of the container. Used to move the containers about the car floor, or station platform. Manufactured by the Thomas Truck & Caster Co., Keokuk, Iowa. Cost about $35 each.**

LIFT TRUCKS. **Model "Yardlift 20" with pneumatic tires, 72-inch lift, 48-inch forks and 2,000 lb. capacity at 24-inch centers. Turning radius 71½ inches. Empty weight about 3,900 lb. Use of snow tires or chains recommended where snow, ice or surface frost are likely to be encountered. Manufactured by Clark Equipment Company, Battle Creek, Mich. Cost about $3,000 each, delivered.**



A Railway Age Map

A substantial reduction in overall passenger train running time is the goal being sought by the Great Northern through the introduction of mechanical handling equipment for the loading and unloading of storage mail and express on certain passenger trains. In one particular case under study—involving Trains No. 9 and 10 between St. Paul, Minn., and Minot, N. D.—a 2½- to 3-hour improvement in running time is anticipated—obviously with substantial savings in equipment ownership and operating expenses.

Two Months of Testing

Possibilities of realizing such a saving have been explored by the Great Northern in two months of wide-range testing of 60 "Cargotainers" under regular operating conditions together with 5 fork-lift trucks spotted—at one time or another, and in various combinations—at 7 selected stations. These tests are believed to be the most extensive yet undertaken by any single railroad for the development of this mechanical method for handling railway express and storage mail. They embraced stations at St. Paul, Minneapolis, Morris and Breckenridge in Minnesota; and Fargo, Grand Forks, and Devils Lake in North Dakota.

The climax of the trials was a special one-day demonstration on January 21 for the benefit of 24 railway officers—including visitors from four neighboring lines—during which the pictures accompanying this article were taken. The "Cargotainers" and fork-lift trucks used in the test were purchased on approval by the Great Northern.

Speed Means Money

The Great Northern's Trains 9 and 10 operate between St. Paul and Minot, N. D., by way of Willmar, Minn., Fargo, Grand Forks and Devils Lake, N. D. Westbound, this is an unusually heavy mail and express train—which also handles passengers—averaging ten "head-end" cars out of the Twin Cities, and five "head-end" cars beyond Fargo.

Three sets of equipment—including three two-unit 3,000-hp. diesels—are required for protection of the existing schedule. If the schedule of the train could be shortened by about 2½ to 3 hours it would be possible to protect the service with but two sets of equipment. In addition, a faster schedule for No. 9 would make possible the elimination of three single-track meets, thereby improving the operation of passenger trains Nos. 2, 10 and 12 as well as several important time freights.

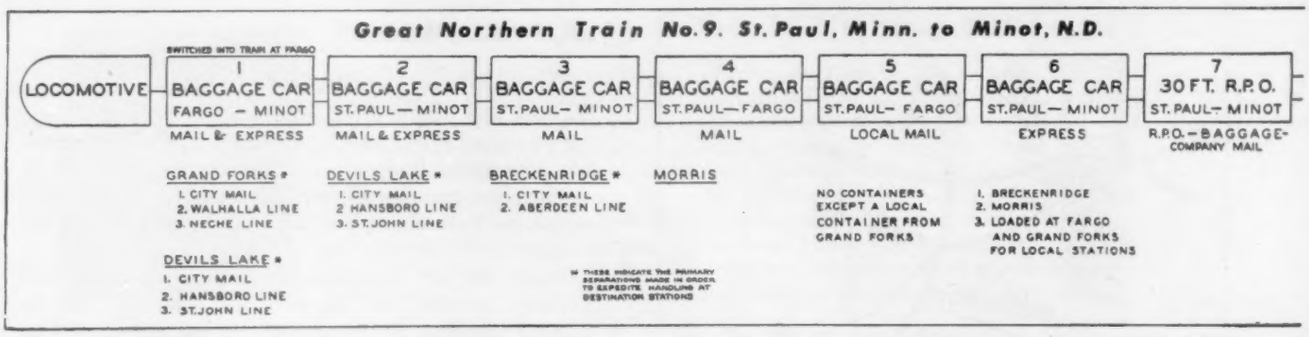
Tests so far indicate such savings might be possible through the use of containers and fork-lifts at all stations handling an average of 300 or more sacks of mail

1 CONTAINERS are loaded directly at the chute in Minneapolis. This reduces manual handling of sacks to a minimum.

2 LOADED CONTAINERS are placed on a regular platform truck for movement downstairs to the train platform. (Minneapolis)

5 FORK-LIFTS make it possible to remove the containers from the cars quickly at intermediate stations. (Breckenridge)

6 HELPER USES small hand-jacks to move the loaded container into the baggage car doorway, ready for the fork-lift.



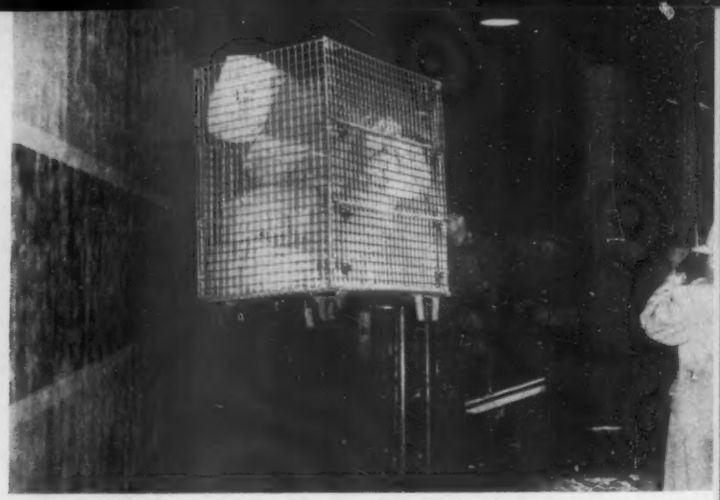
(or their equivalent) off and on, plus several minor changes in other operational procedures.

The new handling system, if instituted, probably would not make possible any savings in labor as compared with present practices. Its entire value lies in the *increased speed* with which large volumes of storage mail and express can be handled at individual stations.

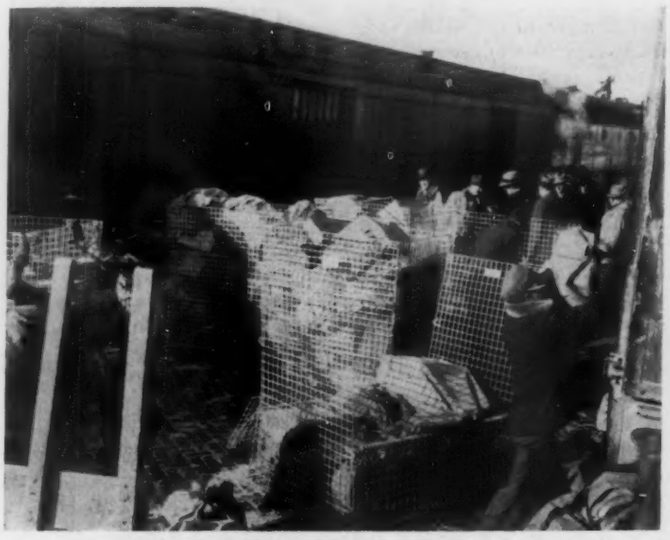
The Great Northern has been careful to observe every existing labor agreement and consequently has not encountered any labor trouble in connection with its experiments. The fork trucks are operated by mail handling employees for the loading and unloading of storage mail and by Railway Express employees for the handling of express. One fork-lift has proved sufficient for most stations because operators can be changed very quickly. Mail and express are never mixed in the same container.

In a few instances—namely Fargo and Grand Forks—the fork-lifts purchased for this container handling

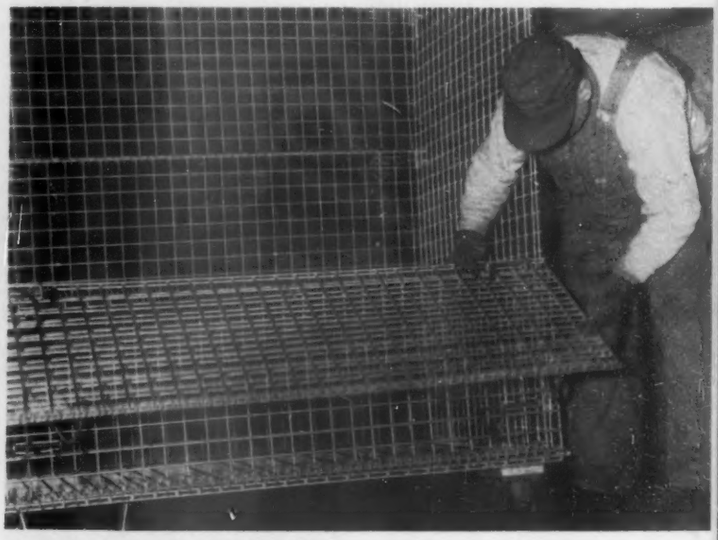
3 **DESTINATION CARDS** are clipped on each container. Pad at the right is used by loaders to keep count of the number of sacks and parcels.



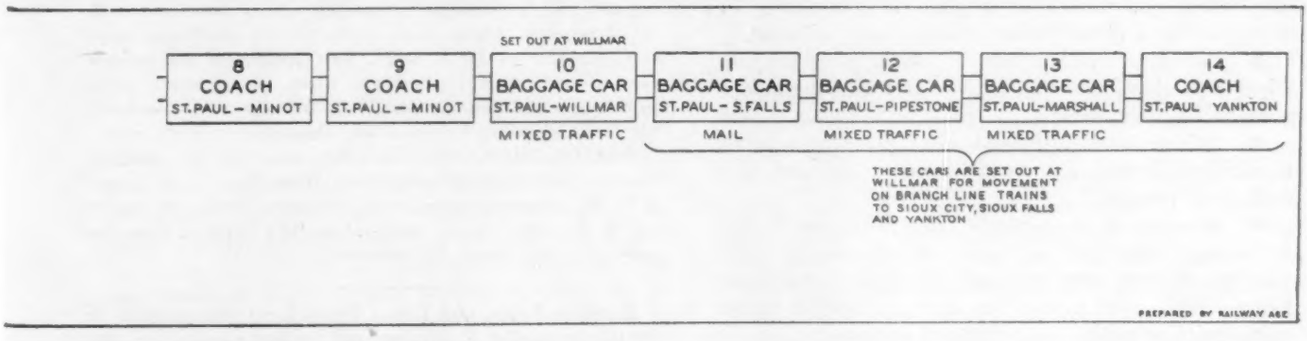
4 **ON THE MINNEAPOLIS PLATFORM** the loaded containers are moved from platform truck into a baggage car with a 5-ft. door.



7 **CONTAINERS** with "Star Route" mail are placed near the outbound trucks so that the loading of trucks is rapidly completed.



8 **EMPTY "CARGOTAINER"** being set up in a baggage car at St. Paul. Fixed dual wheels and oversized skids are noteworthy.



system would be able to work part-time in the local freighthouse, improving and expediting operations there, should it be so desired.

These experiments developed the fact that such a fork-lift container operation can be used to advantage between two points where there is an unusual concentration of traffic—such as is often handled by set-out cars. A carload of containers can be completely emptied in about 10 to 12 minutes—less than the time required for the switching involved in most set-out operations. In some cases the cost and time of set-out switching operations can make a container fork-lift operation an attractive substitute.

At this writing, additional tests are being considered for Trains No. 29 and 30 between St. Paul and Sauk Center, Minn., using containers in place of a set-out car.

The Great Northern management is pleased with the results of its preliminary tests, but plans to conduct

further tests and experiments before determining whether or not additional equipment should be purchased for larger-scale operations. The tests indicate that the containers have greater use and versatility than was anticipated at first. The tests were inaugurated and conducted under the direction of David M. Eichten, manager, mail and baggage traffic, and A. J. McGuinn, supervisor of merchandise service.

What the GN Found Out

In the course of its experiments, the GN discovered a number of things which would interest other railroads considering such an operation:

- A level, reasonably smooth platform is essential because fork-lift truck wheels are not large enough to negotiate large holes, cracks and bumps. The trucks have been used successfully on wood, cement, and brick platforms, under ice and snow conditions, though there were some minor traction difficulties when running light in a few instances.
- Snow and ice are no more of a problem than with a manual operation. However, the use of snow tires or chains is essential.
- Hard-tired fork-lifts have not proved satisfactory.
- Some redesign of the container currently in use (by changing the location of the two bottom side locks) will facilitate its assembly.
- The system works best with cars having doors at least 6 ft. wide. Although 5-ft. doors can be used, they slow operations considerably.
- Collapsed containers cannot be stacked or handled successfully with more than three to a tier.
- It would be desirable to have some simple system of tieing or binding groups of collapsed containers.
- Although containers require a little more car space to handle a given amount of traffic, there is enough unused space on most trains having two or more head-end cars to handle all existing traffic without adding cars—though changes in loading plans may be necessary.
- When containers are used, it is best to rearrange car loading and train loading plans to concentrate all containers for a given station in cars closely adjacent.
- Passenger-type box cars are ideally suited for container operations, although perishable traffic presents a problem in such cases.
- It is essential that car loading plans be adhered to rigidly; if they are not followed, a car can very easily get "plugged."
- At stations—particularly those with island platforms and center posts and roofs—it is essential that the platform be kept clear of empty trucks and trucks not being actually used to work the train. A fork-lift cannot work easily or quickly on a cluttered platform.
- Properly operated, a fork-lift can work successfully on a 9-ft. platform, but an 11 to 12-ft. platform is desirable.
- A maximum of 28 containers can be worked in a 4-door, 70-ft. baggage car, with one set of doors blocked.
- A pad or card should be placed on each container where loaders can keep track of the number of parcels and sacks placed in the container. This is used to compile a final count which is placed on the destination card attached to the container.

How the January 21 Test Was Conducted

This test was conducted for one day only because there were not enough containers to keep it operating on a daily basis. Fifty-one containers were used in the test. It is estimated that 250 containers would be required to cover all operations of Trains 9 and 10 at Willmar, Morris, Breckenridge, Fargo, Grand Forks, Devils Lake, Lakota, Rugby and Minot. Containers were handled only at stations listed below:

ST. PAUL. **Sixteen mail containers were set up in Cars 2, 3 and 4 and were loaded in cars. One container was not needed. Five express containers were set up in Car 6 and loaded in the car. Containers were set up at 4 p.m. and loading took place between 5 p.m. and the train departure at 9 p.m. One fork-lift was used to place containers in the car. Covered cement platform, 18 ft. wide, with center support columns.**

MINNEAPOLIS. **Containers were loaded in the mail and express sorting rooms between 7 and 8:30 p.m. and brought to the platform on regular platform trucks. One empty container was unloaded and 8 mail and 4 express containers loaded in Cars 2, 3, 4, and 5. Although there were two fork-lifts on the platform, the operation required 25 minutes because of bad platform congestion. Covered concrete platform, 20 ft. wide.**

MORRIS. **One fork-lift unloaded 8 mail, 3 express and 1 empty container from Cars 4 and 6 in 13 minutes. No containers were put on the train. Open asphalt platform, 12 ft. wide, covered with snow and ice. Sleeting at time of test. Average time, hand unloading, 24 min.**

BRECKENRIDGE. **One fork-lift unloaded 6 mail, 2 express and 1 "empty milk can" container from Cars 2, 3 and 6 in 11 minutes. No containers were put on the train. Open brick platform 12 to 16 ft. wide, covered with about 4 inches of snow in unplowed areas at head of platform. Average time, hand unloading, 20 min.**

FARGO. **One fork-lift removed 1 express container and put on two in Car 6 in 5 minutes. Car 1, containing 8 mail and 3 express containers which had been set up and loaded in the car prior to train arrival, was switched into the train. Open brick platform, 20 ft. wide between tracks. Temperature 12 above, clear. Average time for loading and unloading by hand 29 minutes.**

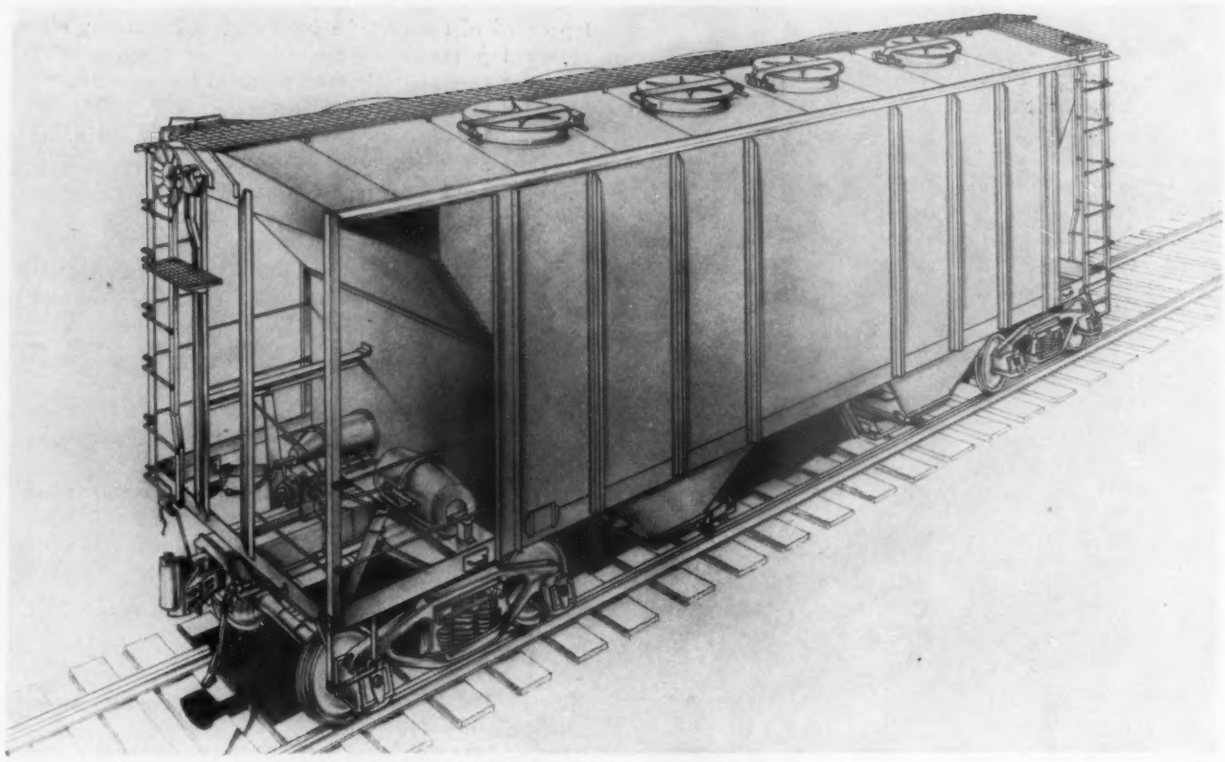
GRAND FORKS. **One fork-lift removed 8 mail and 2 empty containers from Cars 1 and 5, and put on 4 express and 1 container of empty cream cans in Car 5 in 14 minutes. Open wood asphalt brick platform, varying from 10 to 30 ft wide. Test conducted on narrow portion with lateral planking. Clear, temperature zero, bad frost condition on platform. Average time for loading and unloading by hand 30 minutes.**

DEVILS LAKE. **One fork-lift removed 12 mail, 4 express and 2 empty containers from Cars 1, 2, 3 and 5 in 12 minutes. Open brick platform varying from 20 to 28 ft. wide. Clear, temperature 15. Average time for unloading by hand, 25 minutes.**

Between Fargo and Grand Forks local storage mail in containers in Car 5 was removed from the containers and placed in proper floor piles for conventional handling at smaller stations.

In addition to a regular crew of engineer, fireman, head brakeman, rear brakeman and conductor, Train No. 9 carried a train baggageman, an express messenger and three joint mail-express helpers (one St. Paul to Willmar, one St. Paul to Fargo, and one Grand Forks to Rugby).

The operation of Train 10, which carries a considerably lighter load than Train 9, is directly the reverse of Train 9, with most of the containers being placed on the train empty and collapsed.



PS-2 COVERED HOPPER CAR has 50-deg. slope sheets. Can be built in three lengths.

PULLMAN-STANDARD DESIGNS

All-Welded Covered Hopper

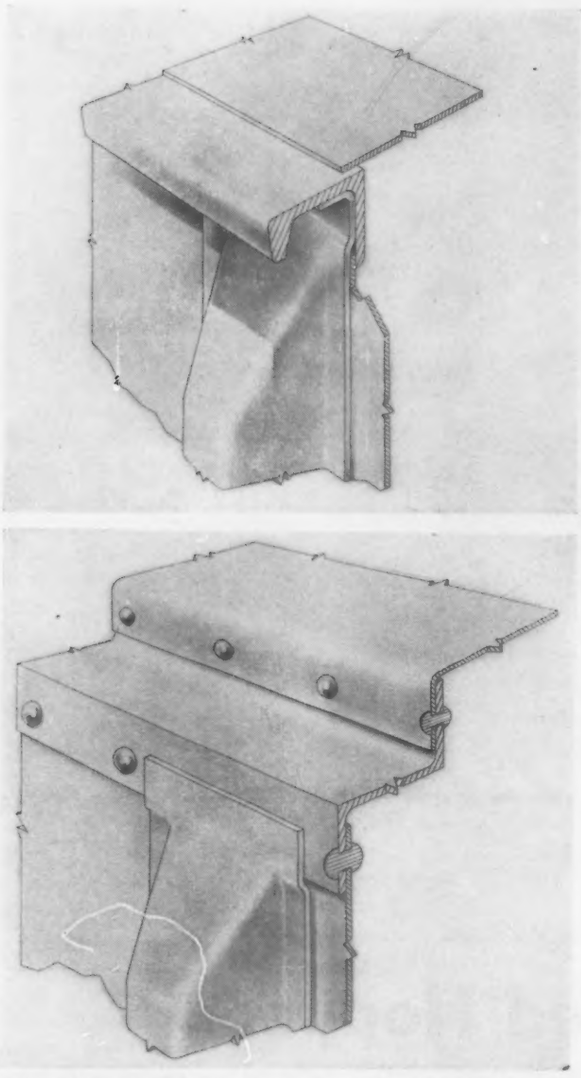
PS-2 design has circular loading hatches and easily cleaned roof; is available in three standard lengths; is self-clearing and cleans readily after unloading

The Pullman-Standard Car Manufacturing Company has recently engineered and built a 70-ton all-welded covered hopper car to a design which can be adapted to three standard lengths of four, six and eight hoppers. The four-hopper car has a light weight of 46,400 lb. and cubic capacity of 2,003 cu. ft. It is designed for extensive automatic arc welding, and has improved side-top corners, stronger roof, circular loading hatches and no obstructions on the 50-deg. slope sheets, shown by experience to be self clearing for most commodities handled in bulk, such as cement, lime and soda ash.

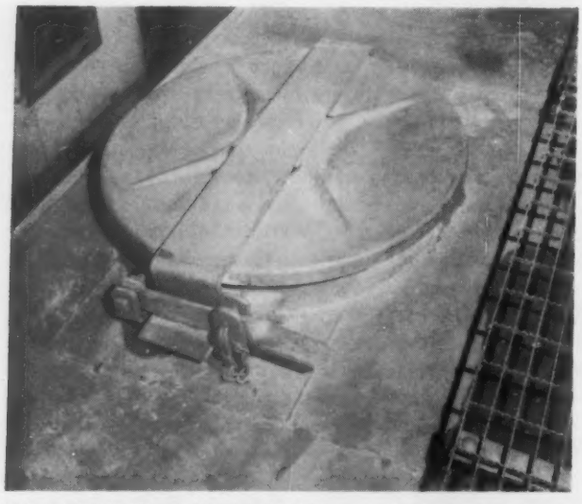
The PS-2 car is essentially a refinement of the covered hopper cars which this company has been designing and building in quantities since 1940, the production of 192 cars in that year being increased to 1,542 cars in 1952. There were 3,092 such cars on order the first of January 1953. Rapidly increasing interest in covered hopper cars is indicated by a Pullman-Standard survey made to determine what details railroads, shippers and consignees consider most desirable in this type of car. The survey showed that, in addition to cement, lime and soda ash, many other materials such as carbon black, crushed stone, grains, bauxite, sand, phosphate, dolomite, soap flakes and salt are frequently transported in bulk. It was indicated, too, that shippers would like to have existing small covered hopper cars modified for handling four additional commodities: calcium carbide, wheat flour, oat flour and sugar.

The car is all welded; the inside is smooth without any projecting rivet heads and with few overlapping ledge joints. Such design assures ease in unloading the car and greatly facilitates cleaning by virtue of the absence of projections where materials can accumulate.

In developing details of the welded construction, a smooth and clean design was produced which assures good painting conditions and much improved "under-car access" for men to operate the unloading gates and maintain air brakes and trucks.



NEW OVERHANGING bulb-angle side plate (top) simplifies roof cleaning and protects car sides. Conventional side-angle construction is shown below.



THE CIRCULAR HATCH COVER is held securely in place by center-pressure locking device.

The roof design was given special attention. The side-top chord of the car is a bulb angle without any offset at the top corner of the car, a construction which promotes easy and safe roof cleaning. The new Pullman-Standard loading hatches are circular, with 30-in. openings instead of the conventional 36-in. by 36-in. and 30-in. by 30-in. hatches. The circular hatch leaves much extra room at the running board and thus assures greater safety for men standing on the roof when loading. Every attention has been given to locating running board supports and hatches to make the area between the hatches under the running boards readily and easily accessible for cleaning. The circular hatch covers have center-pressure locking in combination with flared hatch coamings to make an immediate and lasting seal.

The thicknesses of various structural members have been increased to remedy unsatisfactory conditions observed in the field and meet the demands of some shippers. Center sills are 51.2 lb. A.A.R. Z-bar section; roof carlines are 5-in. by 3-in. by 5/16-in. angles; all roof sheets are 3/16 in. thick; floor sheets, hoods and inside hopper sheets are 5/16 in. and outside hopper sheets are 3/8 in.

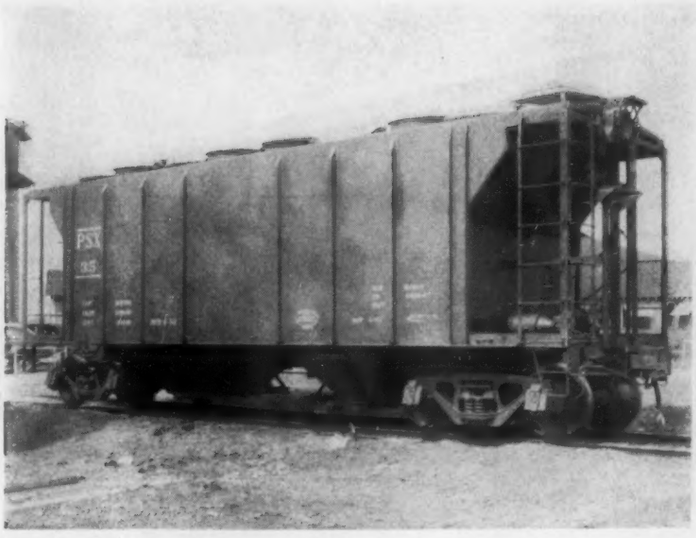
Cubic Capacity

In the Pullman-Standard field survey, covered hopper cars were found with capacities ranging from 1,790 to 2,003 cu. ft. The most common car with 1,958 cu. ft. was generally satisfactory to cement shippers, but 2,003 cu. ft. capacity was more attractive to shippers of soda ash and also considered acceptable for cement. The 1,790 cu. ft. car, while theoretically large enough to carry a full load of cement (by weight) was not acceptable to most shippers. The method of loading cement at the mills through long flexible tubes causes it to become aerated, with the result that after loading the cement settles about 18 in., making it necessary with the smaller capacity car to wait some time after the first loading and then refill the car to obtain full rail-load capacity by weight. The larger cubic capacity car permits loading a full rail load by weight with one filling without the objectionable refill operation.

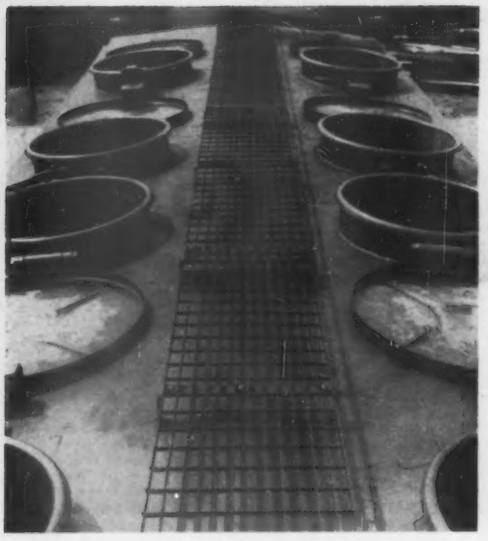
The new Pullman-Standard car floors are sloped 50 deg. from the horizontal. Cars in service with 45 deg. slopes were found to cause difficulty in unloading. A few cars were found with 60-deg. slopes, but considerable study and testing showed the 50-deg. slope and lower center of gravity to be preferable.

The diameter of the circular hatches, 30 in., is generally acceptable and desirable because of ample space left for standing room on the roof and because it is easier to clean the top of the roof and around the hatches. All loading into this type of car is done through flexible tubes ranging in diameter from 6 in. to 14 in. Some shippers suggested cutting down the size of the loading hatches to 24 in. and a few said that 12 in. would be sufficient. The 30 in. dimension is preferable, however, for men to enter and clean the car. The larger hatches assure ease of access and also plenty of air and light for men working inside the cars.

The hatch covers are equipped with locks that fasten each one securely and individually. The type of hinge and lock used assures a tight fit and permits swinging



PILOT CAR of the PS-2 all-welded covered hopper car design. This car has the conventional side plate.



WHEN HATCH COVERS are closed the roof is relatively unobstructed and easily cleaned.

the hatch covers lengthwise of the car so that they lie flat on the roof. Moreover, locks may be operated without the necessity of men getting near the edge of the roof.

The hatch-cover hinge pins are plain round bars bent at each end. Use of the double-bend pins is expected to eliminate trouble from missing hatch covers or hatch-cover pins.

In the Pullman-Standard survey, many cars were found with hatches extending only slightly above roof level. In the new design, the top of the hatch coaming is 6½ in. above the roof, lessening the likelihood of accumulated cement interfering with proper operation of the covers. This height also assures good coaming protection against water and eases cleaning.

The unloading gates, of standard design with 13-in. by 24-in. openings, are the flat gate, rack-and-pinion type, made of cast steel. All receivers are familiar with this conventional gate and equipped with canvas chutes for transfer of the load from cars to conveyors. In the PS-2 design, the location of the unloading gate with respect to center line of car and top of rail is the same as on existing cars to permit full use of present unloading facilities.

Split Load Provided For

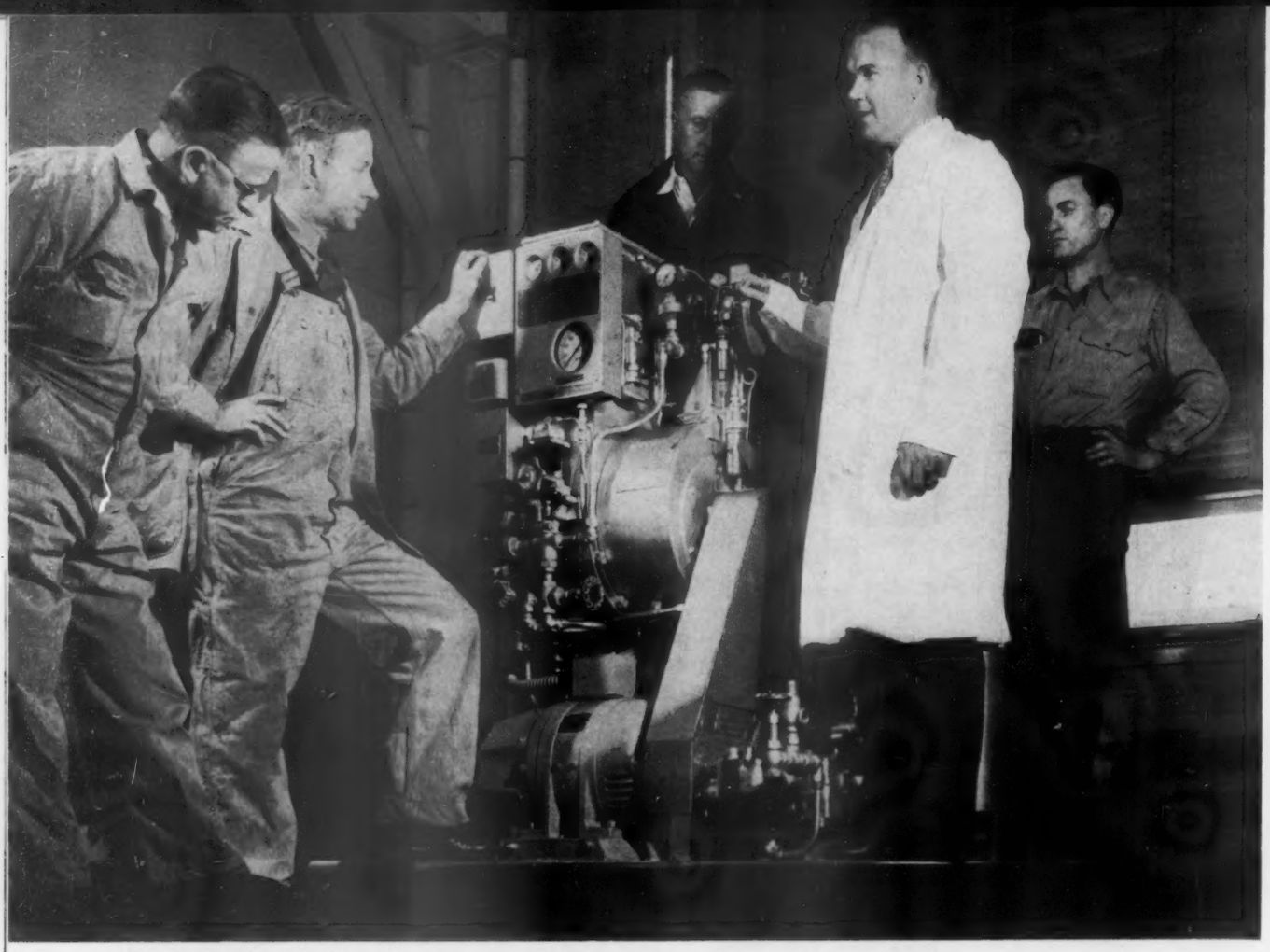
The car has a center partition, allowing shippers to load two different commodities or two different grades of one commodity in the same car to the same consignee, if desired. All inside corners of the car where the floor joins the sides are well radiused. The outside hopper chute plate is relatively thick (3/8 in.) to minimize damage from pounding with sledge hammers when the load fails to flow freely in unloading.

The rolled bulb-angle side plate is said to have two main advantages. With the conventional Z-bar construction, it is difficult as well as dangerous for workmen to clean the offset while standing on top of the roof. Some commodities, notably soda-ash, collect on the ledge of the Z-bar on existing cars so rains can carry corrosive solutions down the sides of the cars with quick and serious damage to the paint. The bulb angle protrudes beyond the side of the car and forms a "rain shed" well away from the side sheets which are thus protected from any normal drainage of roof water or harmful solutions.

The new Pullman-Standard covered hopper car design is unusually flexible from an assembly standpoint and one set of welding jigs will permit lengthening the car from the conventional four-pocket cement car to a six-pocket, or an eight-pocket car.

The conventional cement car, for example, is 29 ft. 3 in. long inside, of 2,003 cu. ft. capacity, with two compartments, eight loading hatches and four unloading doors. The PS-2 can be extended to provide a car 39 ft. 10 in. inside length with 2,840 cu. ft. capacity, three compartments, ten loading hatches and six outlet gates, or by further extending, it can be adapted to handling lighter bulk commodities, with 42 ft. inside length, 3,188 cu. ft. capacity, 4 compartments, 12 loading hatches, and 8 unloading gates. These two alternatives provide for cars for varying unit weights of lading with little change in production as far as dies, jigs and equipment are concerned.

Pullman-Standard anticipates building the new car in these varying lengths and capacities and in production quantities by the third quarter of 1953. Specialties, as trucks, hand brakes, draft gears, air brakes, pipe clamps and painting, will be installed as desired and selected by customers. Production of the earlier-type covered hopper cars will continue into and through the third quarter of 1953. The new design, however, is described as better adapted to modern production methods and improved in numerous details to meet shippers' needs, reduce maintenance costs, increase car availability and give more miles of trouble-free service.



WHENEVER POSSIBLE, classroom work should be supplemented with inspection of the equipment itself. Additional detailed instruction may be given at this time.

Ten Ways to Train Maintainers

FOR DIESEL LOCOMOTIVES

An analysis of their qualities and suitability for various conditions, together with some general considerations growing out of experience gained in the development of teaching techniques.

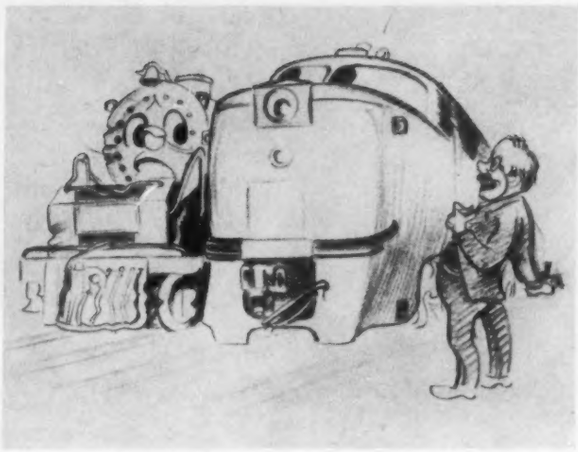
An assignment to list and describe methods of training diesel-electric locomotive maintainers, with all available sources of information, was given to J. W. Teker and E. R. Ainsworth, both of the General Electric Company, by the Land Transportation Committee of the American Institute of Electrical Engineers. They responded with a paper which was presented at the 1953 Midwinter meeting of that body. Here are their findings and recommendations.

A New Task in Education

Since the turn of the century, electricity has played a steadily increasing role as a servant of the railroads. In the beginning this growth was so gradual that the recruiting and training of the relatively small electrical maintenance force was not a major problem. But the coming of the diesel-electric locomotive swiftly changed this picture.

The past 10 years have seen the electrical horsepower installed by the railroads increase from 2 to 25 million. This phenomenal growth has caused a revolution in the industry. Personnel, shops and facilities geared to the maintenance of steam locomotives were suddenly faced with diesel-electric operation. In the early stages of such drastic change some confusion was inevitable.

From the lessons of those pioneer days—often learned through delays and breakdowns—there emerged a pattern of maintenance knowledge for both the builder and



IN THE EARLY DAYS of the diesel-electric locomotive the proud owner of the new diesel was soon . . .

MADE AWARE that he had only steam maintenance facilities with which to keep diesels in service.

the operator of diesel-electric locomotives. The next step was the dissemination of this knowledge at working levels. Part of this task proved to be relatively easy. The mechanical aspect of this new motive power was readily accepted by personnel already mechanically minded. While new standards of precision and cleanliness had to be established, the workman's background of experience was reasonably close to the essentials necessary to understand his new job. Even the maintenance of motor and generator brushes, bearings, gears and belts involved primarily mechanical functions. Hence, these duties were assumed with understanding and comparative ease. But the same could not be said in cases where electrical faults occurred. Here was an element new to the railroad mechanic—one about which he had only vague notions and many fears. The builders and railroads together had to muster enough expert people to diagnose and direct the correction of these electrical troubles.

(1) Early Method of Instruction

The service engineer, trained by the locomotive builder, was usually the first on the scene to put the locomotive into service. The assigned railroad personnel, both operators and maintainers, were subject to his direct instruction in handling and servicing the equipment. He rode the trains and worked with the men at service points until a self-sufficient maintenance nucleus was trained and functioning. Locomotive riding was discontinued as soon as crews were capable and outlying maintenance people learned routine duties. More time could then be spent with the maintainers, especially on diagnosis and correction of the electric control difficulties. Of necessity, much of this instruction was "how to do," rather than "why." The primary objectives were to get the unit going quickly, keep it going and make miles without delays.

(2) Instruction Books

Instruction books, covering the operation and maintenance of the equipment, have been used since the earliest days. They incorporate the best information available to the builder at the time of publication. Usually these books are written for each locomotive design and for each piece of new equipment. In the course of time, a railroad with a diversity of locomotives accumulates a considerable library of builders' manuals and instructions. These are extremely valuable in the continued operation and proper maintenance of the motive power—serving as reference sources for information on limits, adjustment data, etc.

Field experience, as reported by service technicians and investigated by factory engineers, dictates periodic revisions of the instructions. Hence the distribution of instruction books must be known so that they can be kept up-to-date.

There are two schools of thought regarding the use of instruction books on railroads. The first favors wide distribution to get the instructions directly down to the level where work is done. This practice has the advantage of putting a maximum amount of information at the disposal of the workmen. A possible drawback is that, in the pressure of work, the men will not find time to study the instructions. Moreover, specific instructions for a given type of equipment may become general practice, even though not applicable to other equipment. A wide distribution makes it difficult to keep the instruction books up-to-date.

The other school of thought advocates the distribution of a minimum number of books to key people only. These persons then have the responsibility of extracting and interpreting the instructions in terms suitable to govern their local conditions. This method gives local supervisors close control of maintenance practices. Of course, there is the possibility that the instructions will remain on the office shelf and the men at working level be left to their own devices. This may result in a variety of maintenance practices at different points on the same railroad system.

Instruction books are most valuable for the maintenance of motive power, but they are not well adapted for use in the education and training of personnel new to diesel-electric locomotives. Of necessity, the informa-

THE ORIGINAL NEED for maintenance was met by information supplied by the manufacturer's representative.

THE MEN IN THE SHOP relish classroom work but they should not be subjected to competitive examinations.

tion these books contain is largely specific, so that a background of basic knowledge and training is desirable for their proper understanding and use. To meet this need other media of instruction have been developed.

(3) Builders' and Railroads' Schools

Schools conducted at the plants of locomotive builders are a natural outgrowth of the factory training of service engineers. Expert instructors, with factory background and familiarity with operating problems, conduct these classes on an organized basis. Such schools at the factory have teaching facilities, such as classrooms, slide and moving picture projectors, models and other demonstration material. Conducted tours through the factory permit inspection of the equipment to be maintained. Seeing operations performed is a valuable aid in effectively clinching the knowledge gained in the classrooms.

While this orderly education is extremely valuable, it cannot reach the mass of men engaged in maintenance work. The fact that the students must be away from their jobs and homes makes it expensive. Time limitations require a concentrated presentation so that only men who are naturally students can absorb the material. A very effective use of such schools is for the education of key railroad personnel who have teaching ability. They, in turn, then act as instructors for the men on their own properties.

Schools conducted by the railroads themselves are a means of reaching more men—particularly those who actually do the maintenance work on the locomotives. Since such schools are held locally, the time element is not as important as when they are away from home. The classes are shorter—usually not over two hours instead of eight hours. They are spread over a longer period and only one item is handled at a time. The classes are usually conducted by a railroad man who may have attended a factory school, or arrangements may be made to have the builder's instructor do the teaching. These schools bring the teachers to the students rather than have the students go to the teacher.

Instruction cars are another effort to bring the school to the men. These are patterned after the well-known air brake instruction cars. The advent of the diesel introduced the widespread use of other types of specialized equipment, and the railroads were quick to adopt the instruction car method here also. These cars, owned either by the locomotive builders or the railroads, all follow a general pattern. About half the car is devoted to mechanical equipment. The other half is fitted up for electrical instruction. Cut-away sections, typical control set-ups, and other visual aids are provided.

Arrangements are made in advance at the various maintenance points to utilize this facility effectively. Generally, three sessions are held to reach all three working shifts, for example: 9 a.m. to 11 a.m.; 1 p.m. to 3 p.m., and 7 p.m. to 9 p.m.

A number of railroads find it advantageous to own their own instruction cars. Education and training is a continuing effort. It must keep pace with labor turnover, with modernization of equipment and with improvements in methods. Such a car serves to educate personnel, at all the service points on a widespread railroad system, in the best available maintenance practices.

(4) Diesel Clubs

Diesel clubs are a powerful and timely influence for the advancement of education. They combine the natural inclination toward social gatherings with shop talk. The power of such motivations is amazing. It brings men to meetings on their own time after a day's work, regardless of weather, to listen to and talk shop. Such clubs afford opportunities to learn and to exchange experiences, and are quick to bring results. Points picked up at these sessions are soon put into practice on the job.

These clubs enjoy the active cooperation of the railroads, the builders and the vendors—both in supplying speakers and furnishing subject material. This is beneficial to all. Active membership in these clubs tends to be divided between workmen and supervisors, but allows typical American mingling. Programs, however, are slanted to suit the respective memberships.

This type of activity is formalized in a national body

THE MAN THE RAILROAD MUST HAVE is developed by combining classroom instructions. . .

WITH ACTUAL PRACTICAL WORK in repair shops and on locomotives.

through the Locomotive Maintenance Officers Association. The electrical aspects of locomotive operation are occupying an ever increasing part of this association's program time and committee work. This tends toward a better understanding and spreading of electrical know-how on a nationwide basis.

In addition to the general exchange of information by railroad maintenance officers, the Association of American Railroads, through its Electrical Section, studies and records in its proceedings accepted electrical practices. These records are an authoritative source of valuable information for educational programs, and constitute excellent reference material.

(5) Technical Magazines

Trade magazine articles are an important educational tool. Publications formerly devoted to mechanical subjects have definitely recognized the demand for electrical subject matter. Some have established electrical sections and added electrical editors to their staffs. Even titles have been changed to better describe this broadened scope. Published material includes abstracts of meetings, "how to do" articles, and valuable hints in the form of question and answer columns. Staff editors make trips into the field to survey trends, problems, and needs. They seek material from authoritative sources along these lines.

The value of this effort must not be underestimated. Interest in such subjects runs high, and each issue of the publication is read with interest by subscribers. Also, there are non-subscribers who read "office" copies, so that the circulation figures for any magazine are not a true index of its effectiveness. These periodicals, because of the factual and authoritative character of their material, influence thinking and mold viewpoints on current problems. Certain articles become available for distribution to interested parties in reprint form.

Presently the demand is for articles dealing with fundamentals and reasons for the "how" of electric equipment maintenance and operation. The popularity and effectiveness of these articles is governed by the simplicity of their approach. Unfamiliar terminology must be avoided and the language kept at newspaper level. For example, a technical paper with its theoretical and mathematical treatment of a subject is worthless for this purpose. Its message will be lost regardless of its value.

(6) Vendors' Bulletins

Bulletins issued by vendors of various parts, such as bearings, oil products, carbon brushes and instruments, must not be overlooked. Their contribution to the education of personnel is important, and such information should be passed on to the men. Some of these publications are broad in their scope, and others are specific. For example, carbon products bulletins may explain brush terminology and show the relationship between brushes and factors affecting commutation. An instrument vendor's publication may not only explain a meter, but may also show its value for checking insulation or for measuring the output of a locomotive power plant. Another may dwell only on checking viscosity of insulating varnishes or measuring temperatures of ovens. Collectively, these publications make a vast fund of specialized knowledge available to electrical personnel for application to their everyday problems.

Personal contacts between railroad employees and builders' or vendors' engineers and service people are a specialized kind of education. This is often a two-way relationship of mutual benefit, especially in the study and solution of difficulties that may arise. The railroad learns about some of the design considerations and thereby gains an intimate understanding of the mechanism. The builder in turn, learns about the exacting requirements set up by a given duty. Hence, intelligent maintenance and good product design are both aided.

(7) Self Help

Self help means are available to all. Libraries have books ranging from texts on elementary electricity to engineering treatises. Larger communities offer night classes. Wherever the mail goes, there is opportunity for

IN THE PROCESS of training, it is possible to place a man in a job for which he is well adapted.

correspondence courses. Many a supervisor and master mechanic worked up through the ranks in days of the steam locomotive by burning midnight oil. The same can be done today in the study of electricity.

(8) Apprentice Programs

Apprentice systems have long been a principal means of training the electrician, machinist, boilermaker and others in the related skills of the railroad industry. In all probability, the emphasis in this system will be altered to provide for the training of the electrical personnel now required in such numbers for maintenance of diesel-electric locomotives. In the meantime, however, the sudden swing of the railroads to this new motive power has created a demand for men far beyond the capacity of the existing electrical apprenticeship programs. The problem today is one of retraining men experienced along other lines directly for these duties, while suitable and adequate programs are being developed.

Generally, it is the younger men who transfer—those who have not yet formed attachment to steam. Those among the older personnel who transfer are usually the ones who saw the handwriting on the wall or who, because of their key positions, were urged by management to change over and prepare themselves for the coming of the new motive power. With the decline of steam power, however, more older men began to strive for these new jobs on the basis of their seniority. Depending on local circumstances, they sometimes displaced the younger men already doing effective work. There is the possibility that the full use of apprentice system training in electrical maintenance may be delayed until this situation is stabilized.

(9) Service Technicians' Training

Locomotive builders anticipated the need for trained men in their electrical shop crafts. To furnish these, especially for their own service shops, they instituted factory training programs. Likely young men who wish to qualify for such jobs are enrolled. This is a long term training, with emphasis on developing manual skills in all the phases of motor, generator and control construction by actually doing the work. In addition there is regular class work, homework, and a series of inspection tours conducted by qualified instructors from both factory and engineering departments. Upon completing his training, the graduate is ready to take a position in the builder's repair or service shop. While developed primarily for training builder's personnel, such a program could be adopted by the railroads if it appeared desirable.

(10) Junior Engineers' Training

College graduates are being offered opportunities in railroading as never before. The technical complexity of modern transportation tools demands the analytical training and fundamental grounding provided by college curriculums for the management of these facilities. The problem here is one of training an individual, having the necessary qualifications, in the ways of railroading—as contrasted with the training of a railroad man in the fundamentals of the equipment.

Certain circumstances characteristic of this field strongly influence the teaching techniques. Education and training must be considered separately. Under education are grouped those techniques having to do with learning by instruction and study. They include lectures and demonstrations by the instructor. In training, the student practices what he has learned in order to gain the required skill.

Where classes are set up on the man's own time, they compete with fishing, lodge meetings, gardening and other diversions for a share of his interest. For these reasons summer classes are more difficult than those held in winter. To keep a man's attendance for two hours a day, five days a week, for a month is a real challenge. The literature and subject material is issued in small parcels at each class session rather than as a complete text at the first class. This tends to keep the men coming and also confines attention to the subject immediately at hand. An attendance record of 75 per cent or better justifies issuing a diploma.

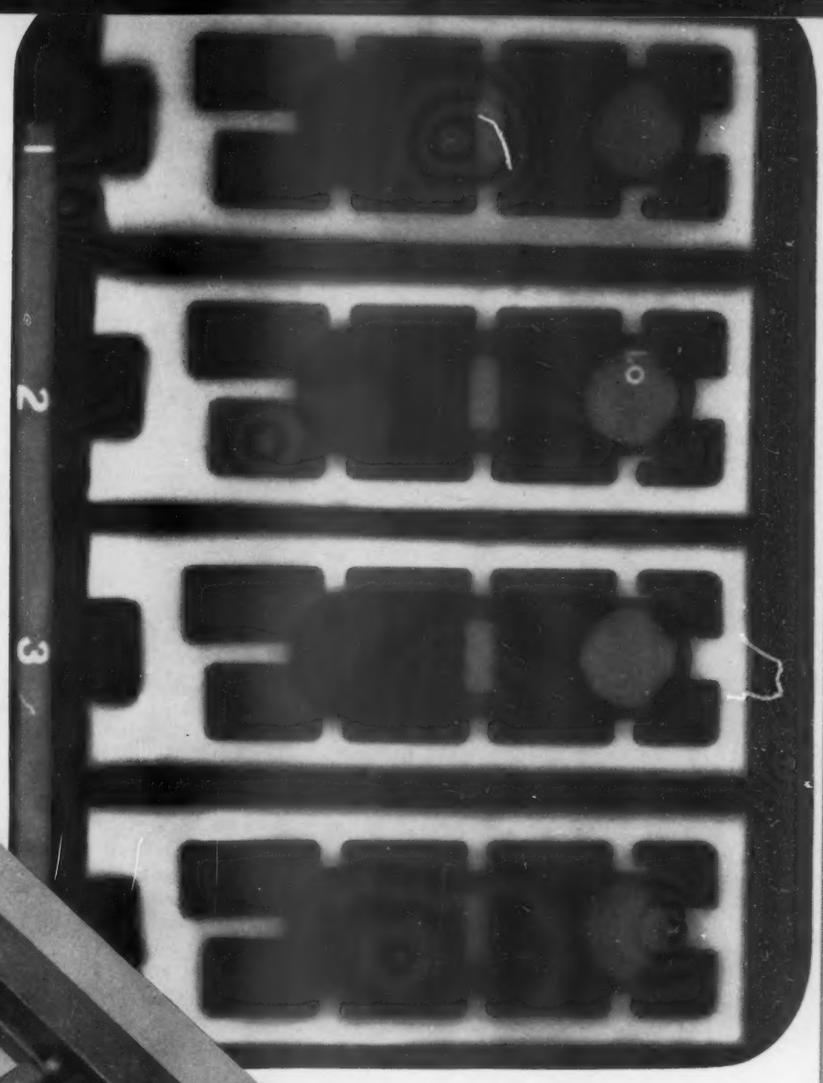
An important point is to have no comparative examinations or tests. This avoids fear on the part of the students of being embarrassed by a revelation of what they don't know. It is an important consideration, especially where men and supervisors sit in the same classes.

The class sessions should be kept short and only one topic should be studied at a time. The level of understanding must be considered in the teaching approach. The instructor must begin where the students are.

Differences in the character of the subject matter are also important. There is a distinction between how and why. It is one thing to show a man how to do something and another to tell him why it is done. Both are necessary; but in teaching electricity, emphasis should be on the why.

An important factor to take into account at the outset is the natural fear of electricity. A student may master all the fundamentals in the classroom, and yet hesitate to apply them when confronted with the equipment. This caution should be respected, and can even be used to advantage in teaching good safety practices.

RADIOGRAPHY prevents waste



Radiograph of an iron casting for a reciprocating ram.

when a $2 casting gets a $375 treatment

This is a casting for a reciprocating ram. It is to be machined and hand scraped to a final flatness of less than .0001 inch. Should porosity show up during machining, the cost of work done and heat treatment is wasted. The part must be scrapped, not scraped.

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TRACK WRENCH . . . Provides uniformly controlled tightening on track bolts to prolong rail life and make better riding track.

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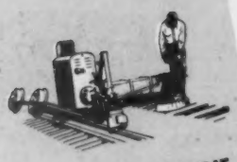

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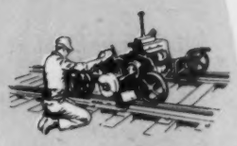

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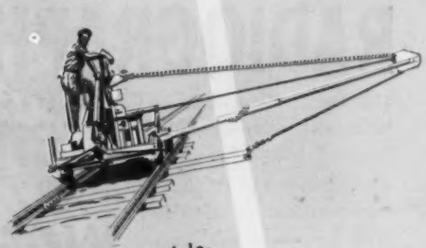
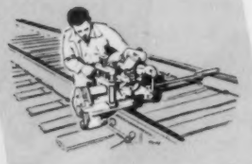


GANDY . . . A triple-purpose machine for removing ties—inserting ties—and as a material handling crane.



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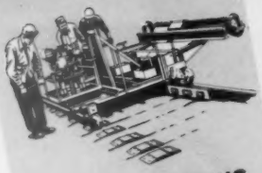
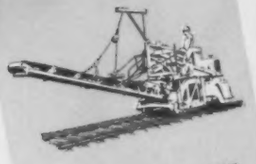


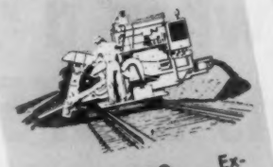
DUN-RITE GAGING MACHINE . . . Nordberg's newest development—for extremely accurate gaging by correctly positioning the tie plates.



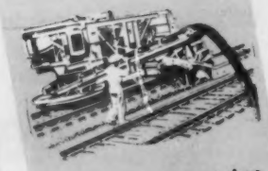
DSL YARD CLEANER . . . Cleans more track faster, better, more economically . . . without damaging ties.

SPIKE HAMMER . . . All spikes driven straight and at big savings in time and money.

CRIBEX® . . . Removes material contained in the cribs and deposits it beyond the ends of the ties.



BALLASTEX® . . . Excavates the ballast in area between tracks or in shoulder. Disposes of it by wasting or by feeding to SCREENEX for cleaning.



SCREENEX® . . . Takes excavated fouled ballast fed by BALLASTEX, cleans material and returns it to track, intertrack, or shoulder.

TRACK SHIFTER . . . Especially suited to heavy lining and high lifts. For new construction, flood repair and grade or line change work.

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NORDBERG MACHINERY

In the interline abstracting workshop. Left to right: V. P. Morgan, supervisor methods, B&O, discussion leader; C. A. Cadenhead, auditor of research, IC; E. Mech, auditor freight receipts, IC; E. S. Weir, auditor machine accounts, CRI&P; E. J. Seahill, auditor freight traffic, CRI&P; and W. N. Norris, general auditor, GN.

WAYS TO GET . . .

Better Statistical Methods Faster

Systems & Procedures Association workshops pool thinking of representatives of several departments of numerous railroads in search for better management tools and improved techniques

By J. S. GALLAGHER, JR. and J. W. MILLIKEN
Associate Editors

Interrailroad and interdepartmental cooperation in stating and working toward the definition and solution of problems common to all railroads was undertaken by the Railway Systems and Procedures Association at two "workshops" held in Chicago on February 26 and 27. One workshop group dealt with punched card mechanical abstracting for interline received carload freight, while the other undertook to determine just what statistics are needed by the traffic department for the proper conduct of its sales efforts, how quickly they are needed, and how they may be obtained. Representatives of eleven railroads, a total of 35 traffic, systems and procedures, research and accounting men, took active part in the two workshop sessions.

The Railway Systems and Procedures Association is a group not yet one year old. Since this organization believes that most problems common to all railroads are interdepartmental in nature, it was only natural that the group should attack the subjects of the workshops on an interdepartmental and interrailroad basis. By this process it is expected that making desirable changes in systems and procedures and related activities will be speeded up for railroad industry as a whole as well as for the individual participating carriers. Thus, it is hoped, the long-term objectives of the association, i.e., *helping* individual railroad managements to achieve maximum effectiveness, will be more completely realized. (See *Railway Age*, December 22, 1952, page 47.)

The workshop groups were organized for the express purpose of concentrating in the areas of unsolved problems which still present a real challenge and which cross departmental and railroad boundaries. They are not intended to revise or develop mandatory rules, nor to review ordinary accomplishments. The association does expect, however, that its workshop activity will inevitably result in positive action.

Each workshop is organized to approach a single problem, though its activity on that problem may eventually lead it into other and related fields. They are limited in size to permit freedom of expression and frequent participation by all present.

Although there were but two workshops at this first meeting, the association has no preconceived ideas as to the number of such projects which might be carried on simultaneously, or as to the subjects which they might cover. As community of interest becomes evident in other subject fields, additional workshops may be set up.

Perhaps the best measure of the success of the workshops is the fact that the participants almost unanimously decided that future meetings should be held to pursue further possible solutions to the questions discussed at the meetings. The writers, who questioned various participants in the sessions, feel that all who attended were of the opinion that the workshops were profitable to them. Many of those present took copious notes. And one accountant told the writers that while he was just beginning to get into the problems his group had discussed, he had picked up much that would be of benefit to him. Traffic men—it being their first experience with such an organization—all expressed great enthusiasm over the interdepartmental and interrailroad approach to

Also in the workshop on interline abstracting, in the usual order: M. Gardner, internal audit officer, PM District, C&O; J. A. Virtue, assistant to auditor revenues, PM District, C&O; W. A. McClean, auditor freight traffic, B&O; W. J. Abrams, assistant chief clerk, B&O.

More participants in the abstracting workshop, this time from right to left: J. T. Doheny, methods officer, C&O; E. P. Idzikowski, assistant to auditor revenues, PM District, C&O; G. W. Yonker, research technician, IC; H. J. Kihn, auditor freight accounts, SP; C. C. Cather, research supervisor, SP; A. V. Bell, auditor freight receipts, GN; and P. G. Pagel, auditor mechanized accounts, GN.

their problems. Both groups have agreed to a second meeting—probably in June—to progress their work further. The long time lag is to allow various railroads, or combinations of railroads, to develop and expand on some of the problems which remained unsolved when the meeting broke up. At the next meeting reports will be made on various facets of the subjects discussed at these meetings. In the following pages the accomplishments of these pioneer workshop meetings are summarized.

How to Speed Revenue Prorating

- **Standard commodity sub-code**
- **Standard master division card**
- **Standard method of stating percents**
- **Coding identity of abstracts for recurring traffic**

The workshop on punched card mechanical abstracting for interline received carload freight was called to discuss difficulties which many railroads have encountered. In effect, the entire discussion during the two-day meeting, with accounting and systems and procedures personnel as participants, ended up in defining a number of areas in which the roads taking part in the workshop will try to work out solutions or to collect information which, together, may help in that respect.

One subject thoroughly discussed was that of making a subcode to the Interstate Commerce Commission's commodity code. The purpose of such a subcode would be to enable the railroads to eliminate the use of six to ten columns of a punched card for an alphabetic commodity description. Instead a three-digit subcode, which would be added to the present existing code numbers, would be used, saving anywhere from three to seven card columns, which could be used for other purposes. Several roads now use subcodes of their own but they (*Continued on page* 133)

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Clearing the tracks for greater profits!

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Performance ON THE JOB COUNTS

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MANUFACTURERS OF INSPECTION CARS, SECTION AND GANG CARS, HY-RAIL CARS, MOTOR CAR ENGINES, PUSH CARS AND TRAILERS, WHEELS, AXLES AND BEARINGS, MOWERS, BALLAST MAINTENANCE CARS, WEED BURNERS AND EXTINGUISHER CARS, DERRICK CARS, OIL SPRAY CARS, GROUTING OUTFITS, WEED SPRAY CARS, TIE SPRAYERS, TIE REMOVERS, TIE INSERTERS

In the session on traffic statistics, left to right: B. E. Wynne, assistant to comptroller, B&LE, discussion leader; L. G. McCall, operations analyst, D&RGW; W. H. Woody, assistant manager, statistics bureau, N&W; R. F. Dickson, assistant freight traffic manager, N&W; V. P. Gairoard, methods analyst, B&O; and E. H. Gardner, assistant to freight traffic manager, B&O.

Some more of the participants in the traffic statistics workshop. Left to right: W. Ermler, chief clerk, IC; C. R. Burr, assistant general freight agent, PRR; V. C. Kline, assistant general freight agent, PRR; E. W. Bergstrom, general freight agent, GN; R. C. Davidson, freight traffic manager, CRI&P.

(*Continued from page* 130)

have nothing in common. If such a code were in existence it would simplify the work of the freight auditors, for everyone would be "talking the same language." There would be, then, no necessity for the different auditors to be familiar with the various subcodes of the roads which do subcoding.

Commodity Subcode

It was brought out that such a subcode has been proposed several times before but has been turned down. However, the consensus was that feeling against setting up such a subcode may have vanished in the light of the traffic departments' increased needs for statistics. The traffic department people in the traffic statistics workshop were consulted on this matter and expressed themselves as in favor of such a code but did not want to make its use mandatory. Any railroad, it was decided, could propose such a code to the proper committees of the Accounting Division of the A.A.R.

Different roads use different methods of stating on abstracts the percentages in divisions of revenue among carriers participating in a haul. It was decided that for the next session of the group each road should do some digging to find out which is the best way to state such percentages. This is to include use of "boiled down" percents and to involve the method of stating them for both mechanical and manual methods of abstracting. Roads participating in the workshop will seek to find out whether it is best to state the percents from right to left or vice versa. Also whether or not the use of boiled down percents will not ease the task of abstracting and auditing foreign line accounts. Some of the lines propose to use time studies to find out which is the most economical method of having the divisions stated.

Many transit shipments involve so many computations that it has not been possible to handle economically on punched card equipment proration of the revenues. One railroad suggested the use of a special translucent waybill for such shipments. Then divisions could be made manually, applied to the face of the waybill and the proper number of copies made (by the white print process) for all roads involved in the haul. The proponent road will report to the workshop group at the next meeting on the design and cost of such a waybill and the cost of handling by such a method.

Easing Auditing Work

One of the big jobs for the auditor of freight accounts on any railroad is auditing the accounts prepared by the settling road. It was thought that in order to save considerable time and effort for the auditors it would be helpful if some sort of identification were placed on abstracts to indicate that abstracts of identical moves had been audited the previous month by originating or intermediate carriers. If the auditor knew that the percents had been applied correctly the month before there would then be no necessity for auditing that traffic again as far as "percenting" is concerned. (This would not apply, of course, in any month when a new agreement on divisions went into effect.) Only traffic not audited during the previous month would need to be audited

Also participating in the traffic statistics workshop were, left to right: G. J. Steele, assistant auditor freight traffic, PRR; G. P. Green, market analyst, Erie; W. J. Manning, auditor revenues, Erie; C. Waskey, assistant special accountant, GN; and W. C. Read, special accountant, GN. T. E. Drury, assistant to general auditor, CRI&P, was absent from the room when these photos were taken.

as abstracts come through. This would save considerable time and money for the auditing carrier. Several roads agreed to work together to try to develop a satisfactory method for coding such abstracts. The same roads also agreed to try to set up a standard master division or reference card (for divisions) for exchange purposes only. Exchange of such cards would facilitate the checking of divisions being applied by the settling carrier.

One rather general subject was presented as something for the members to think over by the time of the next meeting, i.e., the capacity of punched card equipment. It followed statements by several persons that the capacity of both the equipment and the punched card now is inadequate. Members were asked to think about how much more could be done in interline abstracting if the capacities of equipment and cards were greater.

FOR EFFECTIVE SALES DIRECTION . . .

What Statistics Are Needed?

- Complete waybill data
- Fast reports
- Economical preparation

The freight traffic statistics workshop group of the Railway Systems and Procedures Association confined itself to a determination of the statistical data needed for sales work and sales controls, with some consideration of how the desired material might be obtained. Less attention was paid to how any road is now assembling such statistics than to what could be accomplished if proper equipment were available.

The principal development of the session was the conclusion that the traffic department needs, at one time or another, practically all of the information contained on a waybill. It was also determined that there are certain classes of information which, if they are to be of direct sales value, must be received in district sales offices with maximum possible speed. Certain other information is desired for continuing sales analysis work, for rates and division work, for tracing (inasmuch as traffic offices do a certain amount of tracing as a normal part of their sales work), and for monthly traffic summaries.

By a gradual process of evaluation, interpretation, and analysis of end use, the workshop developed a list of statistics which are necessary and desirable for the proper conduct of the traffic department (Chart No. 1). In preparing this list, no consideration was given to how or where the material would be obtained; discussion was confined to a determination of what is necessary and for what purposes.

Upon completion of this project, it was found that it would require approximately 184 columns to handle such information on mechanical tabulating machines—far beyond the capacity of all existing machines. In the interest of seeing what could be done with existing machinery, the list was then trimmed down, by consolidation and elimination, to the limits of an 80-column punch card (the size now in most common use). The results of this work are shown in Chart No. 2.

It was evident to the workshop group that the mechanical compilation of desired traffic statistics should be tied in with similar compilations prepared by the accounting and transportation departments for their own particular uses. Much of the information is repetitive and there is a surprising amount of overlapping and duplication. By combining the efforts of all three departments into one coordinated project it might be possible to expand the mechanical preparation of statistical data for all departments and still bring about a net reduction in gross expenditures.

Competitive Statistics

Early in the workshop proceedings, discussion turned to competitive traffic statistics. It quickly developed that to most railroads this means the compilation of statistics

CHART NO. 1—STATISTICAL DATA DESIRED BY THE TRAFFIC DEPARTMENT AND ITS PROBABLE USES.

	FLASH INFO.	SALES DATA	MONTHLY SALES SUMMARY	RATE SUMMARY	QUOTAS & FORECASTS	TRACING
Origin	X	X	X	X	X[3]	X
Shipper[5]	X	X	X		X[3]	
Destination	X	X	X	X	X[3]	
Consignee[5]	X	X	X			
Stop-Offs	X					
Commodity	X	X	X	X	X[4]	
Car Initial & No.	X	X		X		X
Type Of Car				X		
Waybill No.		X				
Waybill Date		X				
Junction & Road		X	X	X		
Orig. & Term. Road		X[1]		X		
No. Cars Handled		X	X	X	X	
Weight Or Count		X	X	X	X	
Train, Date, Symbol	X					X
Going Rate				X[2]		
Freight Charges[6]		X	X	X	X	
Special Services[7] (icing, heaters, etc.)						

(1) Particularly for overhead traffic
(2) Should indicate how rate is computed: gross ton, net ton, cwt., etc.
(3) Grouped by sales district and salesman
(4) Preferably by principal commodity groups; varies among roads
(5) By name, including account and controlled-account numbers
(6) Including advances
(7) Extra information needed for wired-ahead wheel reports.

CHART NO. 2—PROBABLE PUNCHED CARD COLUMN REQUIREMENTS FOR DESIRED TRAFFIC STATISTICS.

Together with an indication of how the material might be trimmed to fit an 80-column card.

	Probable requirements (in Columns) for ideal set-up		How information might be trimmed to fit 80-col. Card	
	Alphabetical	Numerical	Alphabetical	Numerical
Origin	9	5	9	—
Shipper	10	2+2+4(a)	10	2+2+4(a)
Destination	9	5	9	—
Consignee	10	2+2+4(a)	10	2+2+4(a)
Stop-Offs	—	1(d)	—	—
Commodity	10	2+3+3(e)	5	4(f)
Car Initial & No.	4	6	(b)	6
Type Of Car	2	—	—	—
Waybill No.	—	6	—	—
Waybill Date	—	4	—	3(g)
Junction & Road	8+8(h)	—	—	3
Originating & Terminating Roads	4+4	—	—	—
No. Cars Handled	—	2	—	—
Weight Or Count	—	6	—	2(c)
Train, Date, Symbol, etc.	—	17	—	—
Going Rate	3	4	—	—
Freight Charges	—	5	—	3
Special Services	3	—	—	—
Total Columns Required	84	85	43	37

a Coded for sales districts (2), salesmen (2), and controlled account number (4).
b Car initial is omitted.
c Net tons only.
d Coded to one or more trailing cards which contain complete information on stop-off points.
e Major group (2), I.C.C. Class (3), sub-items (3).
f Four-place code.
g One column code for month.
h Four columns for paint and for road; must be doubled for overhead traffic.

on traffic and commodities actually moving on the road in question which the management considers to be "subject to competition" (with competition generally meaning other railroads). Some railroads (but not all) apparently pay but scant attention to what they consider "captive" or "non-competitive" traffic—even though it might be wide open to competition from the highways or the waterways. All of the traffic men agreed they would like detailed information on traffic moving by highway and by water, but there was considerable variation in the degree of awareness of where such data could be obtained.

One of the big problems which the group left unanswered was what source should be used for basic data on existing traffic, and how it can be obtained quickly and economically. The waybill is, of course, the logical source, but it presents many difficulties in obtaining the information (particularly when cars are moving on memo bills), transcribing it into usable form and transmitting it to the point of use or to a central processing bureau for reduction into manageable form. These problems have not yet been surmounted economically, though the discussion showed that several of the member railroads are seriously working on it. The workshop group plans to deal more intensively with this problem in its next session.

Other matters which are on the docket for further exploration at the next meeting of the group are sources of data on traffic of highway and other competitors, and setting up sales quotas, evaluation of traffic territories and the size of sales force need for a given territory.

Letter from a Reader . . .

Revamp of Transportation Taxation Advocated

HINSDALE, ILL.

TO THE EDITOR:

It is said that one reason transportation taxes are so inequitable is the attempt to apply to transportation the same methods of taxation that apply to businesses that remain in one place, so to speak. The attempt naturally gravitated to the tax on property.

Obviously, it would be more equitable if all interstate transportation companies were taxed on the basis of the extent to which they utilize and benefit from the available ways or channels of transit, than on the extent to which they own land and buildings within particular states. For instance, two railroads might own roadbeds of equal length within a certain state; but one road uses its track more and derives more income from it than the other. But they both pay the same property taxes on the roadbeds.

Would it not be more equitable, as far as the states are concerned to tax all transportation companies on the basis of the extent (frequency of use as well as length of route) to which their vehicles normally pass through or over a state, than on the number of acres and buildings they own within the state's boundaries?

All taxation of commercial enterprises should bear a close relationship to the return the enterprise obtains from the general economy. Income taxes perhaps come closer to doing that than any other, but it is an ideal toward which other taxing methods might well be directed.

Taxes on the improved basis could be collected according to a formula, a formula that would be applicable in all states alike. The formula should be workable because it would be applied only once each fiscal year, for each company. In practice, the method should be simpler, generally, than the various and scattered present systems of property levies and assessments. Also, the states should realize no less revenue from transportation companies in total by this means than they do now through taxation of property.

States have always had a legal right to tax the use of that which the state owns, and it owns the land below the surface, as well as the air above.

Would it be out of order for the National Association of Railroad & Utilities Commissioners to give consideration to this subject, along with that of abandonment of deficit services? There seems to be a pertinent relationship between the two subjects.

HUGH G. DUGAN

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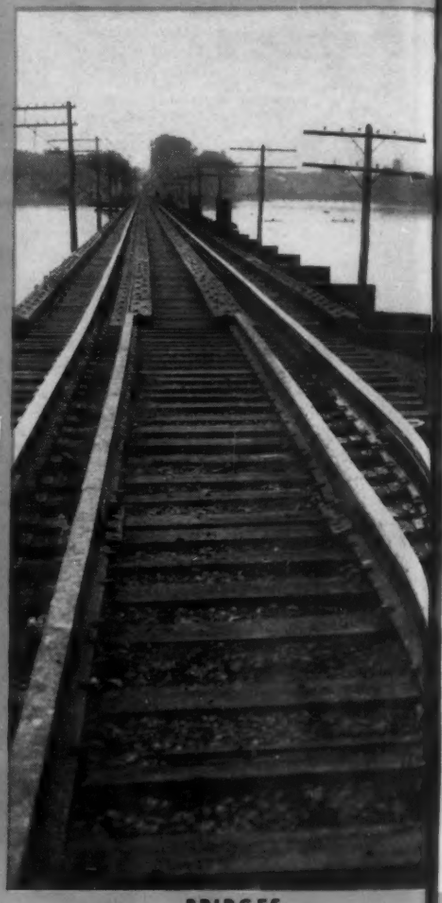

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The RACOR TIE PAD will extend tie life because it will:

1. materially reduce or eliminate plate cutting.
2. reduce spike killing.
3. retard the softening of wood fibres under the tie pad.

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1. cushion shock.
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Financial

Holders Assent to MP Mahaffie Recap Plan

Over 138 per cent of the assurances of assent necessary to petition the reorganization court for permission to file with the Interstate Commerce Commission a Mahaffie-Act reorganization plan for the Missouri Pacific have been received, T. C. Davis, MP chairman, said in a recent letter to holders of the road's securities (*Railway Age*, February 9, page 90).

While the letter emphasized that "assurances given are not necessarily binding on the security holder," Mr. Davis said that, although no date for filing the petition has been set, "our attorneys are now preparing the required papers." It is hoped the petition can be filed by March 10.

Illinois Central.—*Purchase.*—This road has asked the I.C.C. for authority to purchase all properties of its wholly owned subsidiary and lessor, the Canton, Aberdeen & Nashville. The proposal, which is designed to simplify the IC's corporate and financial structure, contemplates liquidation of the Canton company.

Railway Officers

EXECUTIVE

Robert L. Ettenger, Jr., assistant to vice-president of the Finance Accounting, Taxation and Valuation Department of the ASSOCIATION OF AMERICAN RAILROADS, at Washington, D.C., has been named assistant vice-president of that department.

Carl D. Norman has been appointed assistant to vice-president — operation, of the TEXAS & PACIFIC, at Dallas, Tex. He succeeds **E. L. Smith,** who has been promoted elsewhere.

FINANCIAL LEGAL & ACCOUNTING

John Stewart, office assistant to president of the CHICAGO, INDIANAPOLIS & LOUISVILLE, has been named assistant treasurer of the company.

W. L. Mitchell, assistant comptroller and disbursement accountant of the LEHIGH & NEW ENGLAND, has been elected comptroller, with headquarters as before at Bethlehem, Pa., succeeding **C. A. Andrews,** retired vice-president and comptroller, as head of the accounting department. **F. K. Jaxheimer** has been appointed auditor disbursements, with the same responsibilities Mr. Mitchell had as disbursement accountant. **W. L. John** has been named auditor revenues, succeeding to the duties of **C. H. Stocker,** who retired on February 28 as traffic accountant, after 31 years of service.

E. C. Kerr, assistant to vice-president, finance, of the CANADIAN PACIFIC, has been appointed treasurer, with headquarters as before at Montreal, to succeed **James A. Dundas,** who has retired from active duty after more than 46 years of service. Mr. Kerr was born at Montreal February 10, 1903, and entered railroad service in October 1918 as junior clerk in the insurance department of the CPR at

E. C. Kerr

Montreal. He subsequently served as clerk, secretary and chief clerk in the financial department, and in February 1947 was appointed assistant to vice-president of finance.

Mr. Dundas was born at Liverpool, England, and joined the CPR in 1907 as clerk in the office of vice-president of finance, subsequently becoming secretary and chief clerk in that office. He was appointed assistant to vice-president of finance in 1932 and treasurer in February 1944.

Frank A. Luckett, statistician of the SOUTHERN, has been promoted to general statistician, with headquarters remaining at Washington, D.C. He succeeds **W. J. G. Quinn,** whose death was reported in *Railway Age* March 2.

Edwin A. Hancock, assistant auditor passenger accounts of the NEW YORK CENTRAL SYSTEM, has been appointed auditor passenger accounts, with headquarters as before at Detroit, succeeding **Clayton H. Maurice,** who has retired after 36 years of service. **Florent Otjens** and **George Hirschmann** were named assistant auditors passenger accounts. Mr. Otjens was formerly assistant to auditor passenger accounts, and Mr. Hirschmann was chief clerk in the accounting department at Detroit.

Mr. Hancock, a native of Detroit, joined the Central in 1907 as a clerk and later served as ticket receiver and traveling auditor. After a succession of advancements he was appointed assistant auditor passenger accounts in 1943.

Mr. Maurice was born in Cambridge, Vt., and joined the Rutland in 1917 as a traveling auditor. In 1941 he was named comptroller of the Rutland and two months later became assistant auditor passenger accounts with the NYC at Detroit. He became auditor passenger accounts in 1942.

OPERATING

F. G. Aylmer, chief clerk to general superintendent of the Quebec district of the CANADIAN PACIFIC, has been appointed assistant to general superintendent of that district, with headquarters as before at Montreal.

A. E. Cook, departmental accountant of the TORONTO, HAMILTON & BUFFALO, has been appointed assistant to general manager at Hamilton, Ont., succeeding **Arthur I. Coombes,** who has retired after 50 years of service.

C. A. Perry has been promoted to assistant general superintendent transportation of the SEABOARD AIR LINE at Norfolk, Va., succeeding the late **K. W. Rodwell.** Mr. Perry will be succeeded by **J. F. Stewart,** and Mr. Stewart by **H. P. Johnson,** both with the title of assistant general superintendent transportation.

A. B. McCormick has been appointed acting superintendent of the Southern division of the MISSOURI-KANSAS-TEXAS at Muskogee, Okla., during the temporary absence of **C. T. Williams.**

H. A. Benedetto, assistant to general manager of the CHICAGO, BURLINGTON & QUINCY at Omaha, has been named superintendent of the St. Joseph division, to succeed **S. R. Harris,** transferred to Alliance, Neb. **E. R. Shrader,** superintendent at Alliance, has been transferred to Hannibal, Mo., and **G. L. Griggs,** assistant superintendent at Wymore, Neb., to Lincoln, Neb., succeeding **J. E. Hamer,** transferred to Centralia, Ill. **A. E. Way,** assistant superintendent at Centralia, has been appointed assistant to general manager, succeeding Mr. Benedetto. **C. R. Phillips,** trainmaster at Alliance, has been appointed assistant superintendent at Sterling, Colo.

Mr. Benedetto started his career with the Burlington as a trucker at Lincoln, and between 1920 and 1941 held a variety of operating department jobs there. Subsequently he served as traveling car agent, assistant trainmaster and trainmaster at Lincoln and Aurora, Ill. He was appointed assistant to general manager in 1952 following a term as assistant superintendent at Lincoln.

TRAFFIC

Arthur P. Kimmel, assistant general freight agent of the NORTHERN PACIFIC, has been named assistant to general freight traffic manager in

charge of sales and service. **Claude W. Mottram,** chief of the tariff department, has been named assistant general freight agent handling rates. **Albert T. Boerner,** chief clerk to vice-president, has been promoted to assistant to general freight agent.

Edward L. Davies, chief clerk in the coal traffic department of the NEW YORK CENTRAL, has been appointed assistant coal freight agent at New York.

Robert W. Phillips, general agent of the VIRGINIAN at Washington, D.C., has been appointed general western agent at Chicago, succeeding **Robert A. Yelton,** who has retired at his own request after more than 25 years of service with this road. **Lawrence T. Forbes,** commercial agent at Pittsburgh, has been appointed coal traffic agent at Norfolk, Va., succeeding **Aubrey T. Mason,** who replaces Mr. Phillips as general agent at Washington.

Harry J. Smith, general agent of the ILLINOIS TERMINAL, has been promoted to assistant general freight agent at Chicago. **Donald P. O'Connor** has been appointed general agent and **Louise P. Warden,** traffic representative, has been promoted to general agent, both at Chicago. **Donald L. Behler** has been named general agent at Los Angeles.

C. L. Hinnant, assistant freight traffic manager of the ATLANTIC COAST LINE, has been appointed freight traffic manager, with headquarters as before at Wilmington, N.C., succeeding **R. G. Hodgkin,** who has retired after 42 years of service.

Carl M. Lundhagen, traveling freight agent of the GREAT NORTHERN, has been appointed general agent at Great Falls, Mont. He succeeds the late **Lee C. Metcalf.**

Otis D. Teeter has been appointed coal traffic manager of the DENVER & RIO GRANDE WESTERN. **F. E. Hill** has been appointed general agent at Pittsburgh, succeeding **U. E. Lloyd,** deceased.

Earl G. Johnston has been appointed division freight agent of the CANADIAN NATIONAL at Toronto, succeeding **William H. Law,** who has retired after nearly half a century of service with the CNR.

ENGINEERING

C. R. Riley, division engineer of the Baltimore East End division of the BALTMORE & OHIO, has been promoted to engineer maintenance of way of the Eastern region, with headquarters as before at Baltimore, to succeed **W. Morrow,** who has retired. **J. T. Collinson,** assistant division engineer, has been appointed division engineer, with headquarters as before at Newark, Ohio. **Clarence E. Jackman,** formerly division engineer at Newark, who recently moved to Cincinnati (*Railway Age*, February 9), has been transferred to Baltimore to succeed Mr. Riley. **J. A. Caywood,** assistant division engineer at Grafton, W.Va., has been promoted to division engineer at Cincinnati, to replace Mr. Jackman. **E. M. Cummings,** assistant division engineer at Connellsville, Pa., has been advanced to division engineer at Garrett, Ind., to succeed **E. H. Barnhart,** retired.

Lacy Lambert Shirey has been appointed bridge engineer of the CHESAPEAKE & OHIO at Richmond, Va. (*Railway Age*, February 9). Mr. Shirey was born at Union, W.Va., May 23, 1891, and was graduated from Washington & Lee (B.S. in C.E., 1916; C.E., 1929) and Cornell Universities (C.E., 1920). Mr. Shirey entered railroad service August 1, 1917, as rodman with the

Lacy Lambert Shirey

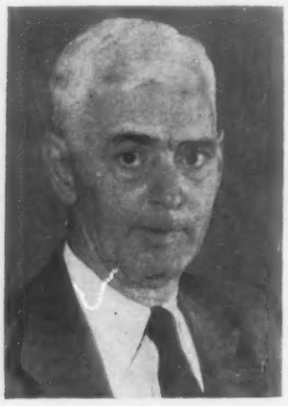
Missouri Pacific at St. Louis, and three months later joined the Cleveland, Cincinnati, Chicago & St. Louis as assistant on engineer corps. In July 1924 he went with the C&O as bridge designer and checker at Richmond and subsequently served as assistant engineer and designing engineer in the bridge department. He became assistant bridge engineer in June 1946.

J. D. Anderson has been named division engineer of the CANADIAN PACIFIC at Winnipeg, succeeding **F. A. Felstead,** who has been transferred.

Frank B. Manning has been named engineer of bridges and structures of the Pere Marquette district of the CHESAPEAKE & OHIO at Detroit, Mich. (*Railway Age*, February 9). Following attendance at Michigan State College, Mr. Manning entered service with the C&O at Grand Rapids, Mich., in 1933, where he was first employed as a welder helper. Progressing through positions of bridge inspector, carpenter, instrumentman and assistant engineer, he was named resident engineer at Detroit in November 1947. He was ap-

pointed division engineer there in March 1951, and acting engineer of bridges and structures in July 1952.

C. B. Bronson, maintenance of way assistant to vice-president of the NEW YORK CENTRAL SYSTEM, has been promoted to the newly created position of assistant chief engineer maintenance of way, with headquarters as before at New York. His former position has been abolished. **G. T. Donahue,** district engineer (West of Buffalo), at Cleveland, has been appointed engineer maintenance of way, with the same headquarters, and **R. R. Smith,** assistant district engineer, has become assistant engineer maintenance of way at Cleveland. **E. H. McGovern,** district engineer (Big Four), at Cincinnati, has been appointed engineer maintenance of way at that point, and **A. A. Keever,** assistant district engineer has become assistant engineer maintenance of way. **W. H. Miesse,** district engineer (Michigan Central), at Detroit, has been appointed engineer



C. B. Bronson

maintenance of way there, and **J. R. Scofield,** assistant district engineer, has been appointed assistant engineer maintenance of way. The positions of engineer maintenance of way and assistant engineer maintenance of way at Cleveland, Cincinnati and Detroit are newly created. The positions of district engineer and assistant district engineer at those points have been abolished.

Mr. Bronson was born January 30, 1889, at Akron, Ohio, and received his higher education at Illinois Institute of Technology. He entered the service of the NYC in June 1913 as assistant to consulting engineer on rails, ties and structural steel, and in August 1924 was appointed assistant inspecting engineer. He was promoted to inspecting engineer in 1934, and in August 1948 was named assistant engineer maintenance of way. He was promoted to maintenance of way assistant to vice-president, operation and maintenance, on January 1, 1949.

John T. Hoelzer has been promoted to engineer maintenance of way, Central region, of the BALTIMORE & OHIO at Pittsburgh *(Railway Age,* February 9). Mr. Hoelzer was born at Akron, Ohio, September 1, 1900, and was graduated from the University of Akron (C.E.). He entered service with the B&O September 15, 1922, as as-

John T. Hoelzer

sistant on engineering corps at Akron and subsequently served as assistant track supervisor and assistant on engineering corps at various points. Mr. Hoelzer was appointed assistant division engineer at Cincinnati in March 1942; and division engineer at Newark, Ohio, in June 1946, transferring to Cincinnati in October 1950.

As reported in *Railway Age* January 19, page 57, **E. W. G. Chapman** has been appointed assistant chief engineer of the Atlantic region of the CANADIAN NATIONAL at Moncton, N.B. Mr. Chapman was born at Dartmouth, N.S., September 17, 1890, and attended Nova Scotia Technical College (B.S. in C.E., 1914). He entered railroad service in 1911 and served as drafts-

E. W. G. Chapman

man and instrumentman on the Canadian Northern Ontario (now CNR) until 1913. After spending the year 1914 in college, he became instrumentman at Truro, N.S., joining the Canadian Field Artillery in 1916. Three years later Mr. Chapman returned to the CNR as instrumentman, subsequently serving as division engineer, acting and assistant superintendent, and superintendent terminals. On April 15, 1945, he was appointed engineer maintenance of way at Moncton.

As reported in *Railway Age* February 23, **Robert F. Bush** has been appointed engineer maintenance of way of the DELAWARE, LACKAWANNA & WESTERN and **Bert L. Beier** has been named engineer maintenance of structures, both at Scranton, Pa. Mr. Bush was born at Elmira, N.Y., and was graduated from Pennsylvania State

Robert F. Bush

College (C.E.). He was first employed as rodman by the city of Kane, Pa., and later joined the signal department of the Pennsylvania. Mr. Bush served for four years with the U.S. Army

Bert L. Beier

Engineers, retiring as captain. He entered Lackawanna service November 12, 1945, with an engineering corps at Buffalo, and was appointed assistant engineer September 1, 1946; supervisor of track at Scranton February 16, 1948; and inspector, maintenance of way, at Scranton January 1, 1950.

Mr. Beier was born in Buffalo, N.Y., and was graduated from Rensselaer Polytechnic Institute. He entered Lackawanna service in 1926 with an engineering corps at Buffalo and was appointed assistant engineer there in

1941 and division engineer at Scranton January 1, 1945.

W. E. Chapman, division engineer of the CENTRAL OF GEORGIA at Columbus, Ga., has been appointed engineer maintenance of way at Savannah, Ga. **J. B. McKerley,** supervisor of bridges and buildings of the Macon division, succeeds Mr. Chapman as division engineer at Columbus.

E. H. Lundin, acting chief engineer of the RUTLAND, has been appointed chief engineer at Rutland, Vt.

William H. Hoar, engineer in charge of construction of the SOUTHERN at Birmingham, Ala., has been appointed division engineer there, succeeding **George A. McRoberts,** transferred to Somerset, Ky.

E. M. Kendall has been appointed water service and heating engineer of the ATCHISON, TOPEKA & SANTA FE (Western Lines) and of the PANHANDLE & SANTA FE, at Amarillo, Tex. He succeeds **C. B. Clegg,** who has retired.

William A. Jurden, assistant engineer of the UNION PACIFIC, who has been working on a line change in Colorado, has been appointed division engineer at Los Angeles, succeeding **Paul G. Martin,** who has been transferred to Kansas City, Mo.

Ray Stephens, engineer maintenance of way of the TOLEDO TERMINAL, has retired. **Raymond Dejaiffe,** assistant engineer, succeeds Mr. Stephens.

William F. Armstrong has been appointed architectural engineer of the CHICAGO & NORTH WESTERN, succeeding **Louis C. Winkelhaus,** who has retired after 32 years of service.

Melvin W. Bruns has been appointed bridge engineer of the TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS, succeeding **L. T. Casson,** resigned.

MECHANICAL

E. H. Wright, assistant master mechanic of the MICHIGAN CENTRAL at Detroit, has been transferred to Jackson, Mich.

SPECIAL

Raymond A. Harris has been appointed supervisor of safety of the ATLANTIC COAST LINE at Wilmington, N.C.

Julian L. James, associate editor of the LOUISVILLE & NASHVILLE Magazine, and past president of the American Railway Magazine Editors Association, has been appointed manager of the L&N's advertising and publicity department and editor of the magazine, with headquarters at Louisville, Ky., succeeding **Thomas E. Owen,**

whose death was reported in *Railway Age* January 19, page 58.

Samuel A. Foster, captain of police of the NEW YORK CENTRAL in the Grand Central Terminal and suburban areas, has retired after 43 years of railroad service.

Frank J. Householder, Jr., has been appointed chief of personnel services of the CHESAPEAKE & OHIO at Cleveland (*Railway Age*, February 2). Mr. Householder was born at Salt Lake City 43 years ago and was graduated from the University of North Carolina (1931). From 1942 to 1945 he was assistant chief of the Salary and Wage Administration Headquarters Staff,

Frank J. Householder, Jr.

Third Service Command, Army Service Forces, and from 1945 to 1947 served as chief of job evaluation, Office of Secretary of War, in Washington, D.C. Mr. Householder joined the C&O as a salary and wage analyst in June 1947. After serving for a year in the labor relations department at Huntington, W.Va., he became staff assistant to vice-president—personnel in November 1949.

OBITUARY

Herbert R. Clarke, who retired as chief engineer of the CHICAGO, BURLINGTON & QUINCY on January 1, died at his home in La Grange, Ill., on February 18, following a short illness. The story of Mr. Clarke's career, together with his picture, appeared in the January 19 *Railway Age*.

Frank M. Golden, superintendent of the CHICAGO NORTH SHORE & MILWAUKEE'S Chicago terminal, died recently at his home in Highland Park, Ill., following a brief illness.

Tracy L. Bothwell, who retired as general freight traffic manager of the ATCHISON, TOPEKA & SANTA FE at Chicago in 1948, died recently at his home in Houston, Tex., after a short illness.

Current Publications

PERIODICAL ARTICLES

What It Takes to Be a Railroad Traffic V-P. Business Week, February 7, 1953, pp. 128-134. McGraw-Hill Publishing Company, New York 36. Single copies, 25 cents.

Harry VonWiller is vice-president in charge of traffic for the Erie. This article follows him through a day at his office, outlines the set-up of the Erie traffic department, describes the selling job Mr. VonWiller is doing, and reviews his career.

The Fisherman's Special Train, by George Frederick and W. E. Meuse. The Fisherman, January 1953, pp. 11-13 et seq. Fisherman Press, Inc., Oxford, Ohio. Single copies, 25 cents.

"I'm jealous!" says Mr. Frederick in the first part of this two-part article. "Fishermen need special trains as much as skiers . . . . Railways are the natural caterers to such requirements. But with one or two exceptions, they are not on the job. Fishing is big business, but most of the railways don't seem to know it. They let opportunities go by."

"Anywhere, anytime!" replies Mr. Meuse, who is general passenger agent of the Baltimore & Ohio. Of course, he says, at present cost levels, railroads have "got to be assured of a pretty good pay load" to justify special service; there are few places where such loads are available for fishermen's specials every day or even every week. But the railroads, he concludes, will be "tickled to death" to cooperate in providing transportation for fishermen — whether for a trainload, a carload, or just a small group using regular services.

PAMPHLETS

Federal Valuation of Railroads in the United States, by B. H. Moore. 87 pages. Reprinted from Bulletin 503, American Railway Engineering Association, September-October 1952. American Railway Engineering Association, 59 E. Van Buren st., Chicago 5. $1.

This monograph is a history of railroad valuation. It reviews the provisions of the Valuation Act; how the valuation was made; its results and its cost to the government and the carriers; how valuations are kept current; valuation court cases, and current use of valuation inventories and records. An appendix contains the summary of I.C.C. elements of value and aggregate values in ex parte valuations, and abstracts from I.C.C. decisions in freight rate cases covering valuation or rate base portion.

Facts and Figures About British Railways. 32 pages. British Railways, The Railway Executive, 222 Marylebone road, London, N.W. 1, England. Free.

With this issue, publication is resumed of a booklet which was last published by the former railway companies jointly in 1947. It makes available once more for ready reference some of the principal facts and figures about British Railways. These include financial results, freight

and passenger traffic, equipment, employees, purchases, electrification, roadway, signaling and communications.

Re-Privatizing Public Enterprise. 38 pages. Chamber of Commerce of the United States, Economic Research Department, Washington 6, D. C., Single copies, 50 cents; quantity discount.

In nearly every country of the world increasing thought is being given to the possibilities of returning public and socialized enterprises to private ownership and operation. Socialization has realized few of the promises that have been held out by the collectivists. Efficiency, instead of improving, has frequently declined. Industrial relations, instead of being smoothed, have frequently deteriorated. The public and employee "sense of participation" which were promised under socialism have failed to materialize. Financial and government budget problems have increased. In short, considerable disillusionment has followed the glowing promises of earlier years. This report has been prepared to help those individuals who want to consider steps and procedures necessary for "reprivatizing" government owned companies.

How to Get the Most Out of Every Day, by Karin Roon. 21 pages, illustrations. Bureau of Business Practice, National Foremen's Institute, Inc., 100 Garfield ave., New London, Conn. Single copies, 20 cents. Special prices for quantity orders.

This booklet is an abridgment of a chapter from the book, "The New Way to Relax," by Karin Roon, published by Greystone Press, 100 Sixth ave., New York 13.

It gives answers to the problems of organizing an individual's activities for the highest degree of efficiency and the least amount of tension. It outlines eight tested ways, based on modern psychosomatics, that an employee can apply to organization of his daily activities.

Thank You!, by Dale Carnegie. 20 pages, illustrations. Bureau of Business Practice, National Foremen's Institute, Inc., 100 Garfield ave., New London, Conn. Single copies, 20 cents. Special prices for quantity orders.

An illustrated booklet on courtesy for the worker in American industry. Mr. Carnegie, well-known for his book, "How to Win Friends and Influence People," outlines eight reasons for courtesy in the employee's business and personal life and why courtesy is important in creating good will for his company. Twelve rules are offered for developing better habits of courtesy in every day living. The text is illustrated with humorous cartoons.

Facts About the Southern Pacific. 24 pages, illustrations. SP Public Relations Department, 65 Market st., San Francisco 5, Cal. Free.

A well illustrated presentation of the railroad's purpose, personality, equipment and history, prepared primarily for employees, patrons and neighbors of this 15,270-mile system.

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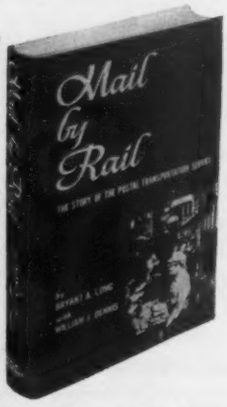

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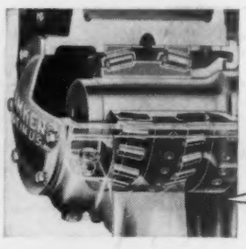

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